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HYPOGLYCEMIA IN SCLERODERMA

THE METABOLISM IN EIGHT CASES WITH REFERENCE TO THE FUNCTION OF GLANDS OF INTERNAL SECRETION *

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During the last few years, I have had the unusual opportunity of observing eight cases of generalized scleroderma at the Johns Hopkins Hospital. One of these, owing to the acute and rapidly progressive form of the disease, terminated fatally and was observed further at autopsy. In spite of the fact that the disease is fairly common and very familiar to the dermatologist, comparatively few studies have been made of the metabolism in scleroderma, and no instances of syncopal attacks associated with hypoglycemia could be found in the literature on the subject. For this reason, it has seemed desirable to report one of the cases in this group in detail and to record in summary observations made in the other seven cases. Though the literature dealing with scleroderma is very extensive, most of the important information on the subject can be obtained in the statistical article of Lewin and Heller,[1] the monograph by Cassirer [2] in Die Vasomotorisch Trophischen Neurosen and the recent article of Matsui.[3] Notwithstanding a familiarity with the clinical aspects of the disease, which is considerable, almost nothing substantial is known about the etiology, the pathogenesis or the treatment.

Scleroderma occurs twice as often in women as in men, but our cases in this respect were unusual since they were all in males. Though scleroderma may affect both children and elderly persons, it attacks most frequently those between the ages of 30 and 50. The ages of our patients varied from 15 to 63. Heredity and occupation are not known to play a part in the development of the disease.

Most writers describe scleroderma as occurring either in a circumscribed or in a diffuse form. The circumscribed variety is more common than the diffuse and is seen in three forms: (1) as small patches of thickened skin found often about the neck and termed morphea; (2) as linear streaks sometimes following the course of nerves, sometimes the course of blood vessels, and (3) as a sclerodactyle. The disease may commence as a localized process presenting any one of these forms and later become generalized. When it occurs as the third form, sclerodactyle, the patient may suffer for many years from many of the symptoms of Raynaud's disease. This happened in two of our cases.

Thus, the generalized form of scleroderma may be preceded by such prodromes as Raynaud's syndrome, weakness, general sensory disturbances, loss of weight and pains in the joints. In one of our cases there was itching of the palms of the hands, in two weakness, and in three joint pains.

The disease itself is usually divided into the three stages of edema, induration and atrophy. Edema was cited as a noticeable early symptom by four of our patients; induration of the skin was present in all the patients, and atrophy was observed in two. The thickening and the induration of the skin followed the edema with considerable rapidity. The disease affects the upper extremities most frequently (in 287 of Lewin and Heller's 459 cases); then the trunk (202), the head (193), and finally the lower extremities (122). Such absolutely generalized scleroderma as was observed in practically all our cases is comparatively rare and occurred in only ninety-five of Lewin and Heller's series.

With the progressive thickening, hardening, smoothing and contraction of the skin, the prodromal pain and stiffness of the joints of the hands and feet may persist or increase. Movement becomes more and more limited as the skin hardens and the muscles stiffen, while all the joints, including even those of the neck and jaw, gradually grow more and more rigid. Finally the patient may become absolutely hidebound, and as inflexible as a wooden image. During the progress of the disease, patches or streaks of pigmentation occur over the skin. These may be ivory colored, yellowish or brown and are irregularly distributed, or confined chiefly to the thickened areas of skin. Diffuse deep bronzing is not very rare. It was a most extraordinary feature in three of our eight cases. The deepest pigmentation was seen over the forearms and hands, the legs and feet, and in one instance over the buttocks. In these situations, the skin was a dark mahogany. It is remarkable, in view of the extensive disease of the skin, that cutaneous sensation may be perfectly preserved as it was in all our cases; that the deep and superficial reflexes may be unaltered, and that sweating may continue. Alopecia is common.

Vasomotor disturbances are frequent, and in many instances, as happened in five of these eight cases, the hands and feet became purple and cold when in a dependent position. Trophic disturbances of the skin and especially panaritia are common. Nodular thick-

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1. Lewin and Heller: Die Sclerodermie, Charité-Ann. **19**: 763, 1894.
2. Cassirer: Die Vasomotorisch Trophischen Neurosen, Berlin, 1912.
3. Matsui, S.: Ueber die Pathologie und Pathologenese von Scleroderma universalis, Mitt. a. d. med. Fakult. d. k. Univ. zu Tokyo **21**: 55, 1924.

enings of the skin and calcification of the skin with actual bone formation has been recorded.[4]

Even though alterations of the skin are prominent, it is now generally recognized, as Dinkler [5] and Cassirer have stated, that the disease actually affects the connective tissues of the entire body, and the stroma of all organs may become involved in the pathologic process. The subcutaneous tissues become firm beneath the skin, and the fascia denser; the muscles usually feel hard and small, and the skin is firmly attached to them. Atrophy and hypertrophy of the bones of the extremities take place. Such changes were observed in roentgenograms of the hands of six of our patients. The tongue may harden; the buccal mucosa becomes affected, and the uvula and pharynx are stiffened, so that swallowing becomes difficult. This was noted in one of our cases. Even the larynx may be involved.

The constitutional symptoms are few. Progressive weakness and asthenia with loss of weight are the outstanding features. Our patients lost from 15 to 35 pounds (6.8 to 16 Kg.) during the course of the disease. There are no fever, no characteristic anemia and no changes in the number or proportions of leukocytes, and the general physical examination rarely discloses alterations in the thoracic or abdominal organs that can be directly associated with the disease. The eyegrounds in our patients were normal. The blood pressure was usually below normal.

Fig. 1.—Fixed facial expression at time of first examination, Sept. 20, 1924.

The disease may run an acute course lasting only a few weeks, or it may drag on for years, with remissions from time to time.

The pathologic changes of the skin have been extensively studied, but careful investigations of the organs removed at autopsy are comparatively rare. The epidermis of the skin is little altered, except for increased pigment in the malpighian layer. The changes in the corium are described as consisting of an increase in the collaginous intercellular substance, associated with flattening of the papillae, compression of the cellular connective tissue and fragmentation of the elastic fibrils. The sweat glands and hair follicles may be compressed and atrophied. The nerves are as a rule unaffected. Much attention has been paid to the blood vessels, especially by Dinkler. The adventitia is thickened and may show collections of round cells. The media may be infiltrated by connective tissue fibers running parallel to the smooth muscle cells, the intima thickened and the lumen of the vessel narrowed or almost obliterated. Collections of small round cells are frequently scattered through the corium.

These alterations in the connective tissue seem to be almost the only characteristic feature of the disease, but they may occur in all parts of the body. Aside from the subcutaneous tissues, they are found most frequently in the fasciae and muscles, though they are said to affect the tongue, buccal mucous membranes, interalveolar septums of the lung, submucosa of the gastro-intestinal tract, connective tissue of the liver, spleen, kidneys and the interacinar tissue of the thyroid gland, the suprarenals or the ovaries. The brain and spinal cord have shown various forms of sclerosing, atrophic and degenerative lesions.

The cause of the disease is extremely obscure. It has been thought of as a sequel to some infectious disease, as dependent on the alterations in the blood vessels, as arising from some disease of the nervous system, such as vasomotor disturbance, which is perhaps the most popular hypothesis, or, finally, because of the alterations described in the thyroid, the occasional association of outspoken thyroid disease with scleroderma and the improvement sometimes obtained after administration of thyroid extract, as directly dependent on disease of the thyroid gland or other glands of internal secretion.

The last hypothesis, namely, that disorders of the glands of internal secretion might be related etiologically to scleroderma, has attracted considerable attention. Hektoen described atrophy of the thyroid gland in scleroderma and suggested that the disease might be associated with dysthyroidism. At autopsy, abnormalities have been found in the pituitary gland, the thyroid, the parathyroids, the suprarenal, the pancreas, the testes and the ovaries (Matsui, Kraus,[6] Hektoen [7]), while symptoms and signs suggesting an abnormal function of one or several glands of internal secretion have been frequently recorded (Osler;[8] Sequeira;[9] Castle;[10] Winfield;[11] Rothman;[12] Heimann-Hatry;[13] Benard and Couland;[14] Vallery-Radot, Hillemand and Chomereau-Lamotte,[15] and Benard, Hillemand and Laporte [16]). Scleroderma has also been observed to appear in patients with myxedema who are under treatment with thyroid extract. Hannay [17] has reported a case of generalized scleroderma in which there was a basal metabolic rate of —25, with improvement on the administration of thyroid extract, and Rothman has recorded a basal rate of —23.9 in one of his patients. Castle has recently discussed at some length the possible connection

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15. Vallery-Radot, Pasteur; Hillemand, P., and Chomereau-Lamotte, B.: Maladie de Basedow, myxoedema, plus sclerodermie generalisé avec état sclérodermique du voile du palais, Bull. et mém. Soc. méd. d. hôp. de Paris **50:** 1149 (June 25) 1926.
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between scleroderma and diseases of the glands of internal secretion, while Winfield, Castle and Rothman, among others, have drawn attention to the similarity of some of the deeply pigmented cases of scleroderma to Addison's disease.

Fig. 2.—Appearance of skin over neck and trunk at time of first admission.

REPORT OF CASE

The remarkable attacks of hypoglycemia that occurred in our first case of scleroderma led us to study in the subsequent cases the basal metabolic rates, the dextrose tolerance, and certain chemical constituents of the blood. An abstract of the history and examinations in the first case follows:

S. de V., a white man, single, aged 39, a farmer, was admitted to the Johns Hopkins Hospital, Oct. 15, 1924, complaining of "stiffness of the body for eighteen months." The father, mother, two brothers and one sister were living and well. There was no history of similar disease or of nervous disorders in the family. The patient himself had usually been in good health. At 19, two attacks of "rheumatism" affected several joints and confined him to bed for two and four weeks, respectively. The patient was not addicted to the use of alcohol. His best weight had been 178 pounds (80 Kg.); his average weight was 168 pounds (76 Kg.), and his present weight, 135 pounds (61 Kg.).

In May, 1923, eighteen months before admission, while pulling tobacco, the patient noticed itching of the palms of the hands. One week later, the hands and feet swelled. Two weeks after this there was swelling of the feet and knees, which did not prevent his working. Six months after onset, in October, 1923, he suffered from acute pain in the right shoulder for one week, followed by stiffness of the joints. At the same time, he noticed that the skin of the hands and feet was becoming hard and that movements were limited. Later, the shoulders became involved, and the chest muscles tightened so that it was difficult for him to take a deep breath. There was slow progressive hardening of the skin and stiffening of the joints for one year, until all movements, including walking and speaking, became difficult. In January, 1924, nine months before admission, the skin began to darken in patches. Articulation became very difficult, and the muscles grew smaller and harder than normal. He had been unable to walk for one year.

Physical examination showed partial rigidity with semiflexion of the arms and legs. The facial expression was fixed and the skin smooth and hard (fig. 1). The eyelids were thickened and stiff; the mouth could not be opened wide; the tongue could not be protruded beyond the teeth, and the wrists and metacarpophalangeal joints could be moved very little. The skin over the entire body was smooth, thick and shiny, and showed deep grayish brown pigmentation, most pronounced over the face, over both upper and lower extremities and over bony prominences (fig. 2). Over the neck, the skin was loose. Small patches of leukoderma mottled the deep brown pigmentation of the hands and forearms. The muscles felt hard. The fundi were normal. The thyroid was not palpable. The chest was long, and respiratory movements were much restricted. The lungs were clear to percussion and auscultation; the cardiac impulse was not palpable or visible; dulness reached 9 cm. to the left in the fifth interspace; the heart sounds were clear. The blood pressure was 120 systolic and 80 diastolic; the pulse rate was 80 and regular. The abdomen was flat and the abdominal muscles were tense and hard; no organs were palpable. All the deep tendon reflexes were active and equal. Abdominal reflexes were present. Cutaneous sensations for touch, pain and temperature were acute. Crepitation was felt over the left knee. Roentgenograms of the joints showed localized atrophy and no exostoses. The hemoglobin was 68 per cent; the red blood count was 5,200,000; the white blood count, 8,200, with polymorphonuclears, 78 per cent; eosinophils, 1 per cent; lymphocytes, 13 per cent, and large mononuclears, 8 per cent. The Wassermann reaction was negative. On frequent occasions the urine was clear and amber, ranging from acid to neutral. The specific gravity varied from 1.010 to 1.020; sugar was absent, but occasional traces of albumin, and occasional hyaline casts were found. Red blood cells or leukocytes were not seen.

October 22, breakfast was omitted in preparation for a determination of the basal metabolic rate. At noon the patient became dazed and semidelirious; he cried out and

Fig. 3.—Appearance of forearms and hands.

was quite irrational. He recovered immediately after taking food. This was the second such attack, the first having occurred under similar circumstances.

October 23, the basal metabolic rate was —23; the nonprotein nitrogen, 33 mg. per hundred cubic centimeters; creatinine, 1.88 mg.; chlorides, 527 mg., and uric acid, 5.0 mg. per hundred cubic centimeters.

Chemical analysis of the blood was made before and during an attack of delirium occurring after the patient had fasted with the result shown in table 1.

October 28, 5 minims (0.3 cc.) of epinephrine, 1:1,000, was injected subcutaneously without material change in the blood pressure or pulse rate.

October 29, there was 3.08 mg. of blood inorganic phosphates per hundred cubic centimeters; and the blood sugar

TABLE 1.—*Chemical Analysis of Blood*

	Before Delirium	During Delirium
Blood carbon dioxide..	57 per cent by volume	61.7 per cent by volume
Blood sugar.....	0.052 per cent	0.047 per cent

was 0.059 per cent. Four hours later, the patient felt weak and looked pale. Examination of the blood showed 3 mg. of inorganic phosphates per hundred cubic centimeters, and sugar, 0.051 per cent.

October 29, the basal metabolic rate was —13.

The patient was placed on a diet containing 3,000 calories during the early part of his stay in the hospital. Later, the diet was reduced to 2,000 calories, averaging 56 Gm. of protein, 125 Gm. of fat, and from 145 to 160 Gm. of carbohydrate. The fluid intake varied from 2,900 to 3,200 cc., and the urinary output from 1,700 to 2,200 cc.

Fig. 4.—Improvement in condition at time of second admission: skin paler and facial expression less rigid.

October 30, 4 grains (0.26 Gm.) of thyroid extract was given daily. November 5, the movements of the limbs were somewhat more supple. November 16, the improvement continued; the patient could wrinkle the face a little and could smile; the skin of the face was paler (fig. 3). The skin over the hands could just be pinched between the fingers. November 20, the basal metabolic rate was —7. November 30, the improvement was continuing; the patient had some movement of the wrists. December 5, the patient could walk comfortably, but stiffly; the skin of the face and body had become much paler, and the skin everywhere was softer. He had gained 3.1 Kg. in weight. The circumference of the arms and legs had increased about an inch. The temperature of the patient during his stay in the hospital had varied between 98 and 99 F.; the pulse rate, between 80 and 100.

December 21, the patient was discharged in considerably improved condition.

The patient was readmitted, June 20, 1925, complaining of nausea and vomiting. In April, he had suffered from multiple joint pains, cough, nausea and vomiting lasting six weeks. He had lost weight, and now weighed only 118 pounds (53.5 Kg.). He had taken thyroid extract, 2 or 3 grains (0.13 or 0.2 Gm.) daily for six months. Recently, he had been improving. The patient had returned feeling about as he did when he left the hospital, though he thought that he was a little stiffer and a little thinner. He walked now by himself but with a curious gait, slightly bent, with the arms and wrist a little flexed, the hands hanging stiff and motionless close together in front of him. The knees were stiff and he had a woodeny gait, swinging a little from side to side. He sat with the face immobile, and with his hands in his lap. He was quite thin. The color of the skin had changed somewhat; the face now was quite pale, looking especially colorless in contrast to the deep pigmentation of the body, hands and legs. There were white patches behind the ears and along the jaws. Over the neck, body and extremities the pigmentation was very marked. It was deepest over the bony prominences of the scapula, shoulder and forearm; the spinous processes, sacrum and buttocks, and about the genitalia, thighs, legs and hands.

In many of these areas, the skin was almost like morocco leather. It was thickened everywhere, but over the abdomen and portions of the back it could be picked up between the fingers. Over the forearms, feet, hands and bony prominences it was impossible to pick the skin up, and it seemed to be not only thickened but attached to the deeper tissues. This was most marked on the hands. From the wrists down, the hands looked and felt as if they were made of smooth dull mahogany or walnut. The finger nails were pink. On the backs of the hands and fingers there were irregular, sharply outlined, pale patches and lines from 1 cm. in diameter to 3 cm. in length (fig. 4). The muscles seemed wasted and felt firm. The biceps and pectorals could just be differentiated from skin. The abdominals could be better felt. There was great limitation of movement of all joints. The fingers could be feebly moved. The wrists flexed very slightly, but the elbows and shoulders had considerable movement. The hips could be moved slightly in all directions, the knees moved a little, and the ankles least. There was very little hair in the axilla, good pubic hair, but little over the abdomen. The face was held rigid. The eyelids and lips were thickened and waxy. The lower lids could be everted and the mouth could be opened only midway. He could not show his teeth. There were lines about the nose but no real wrinkles. The patient could, however, wrinkle his face and forehead and smile slightly and stiffly like a man with a split lip. He had almost a parkinsonian facies. The pigmentation and thickening of the skin did not always occur together. The neck was pigmented, but the skin here and over the sides of the abdomen was thinnest. Both arms were deeply pigmented. His hair was almost black. There was no pigmentation of visible mucous membranes. The tendon reflexes (biceps, triceps, radial and patellar) were all active and equal. The abdominal reflexes were present. The examination of the chest and abdomen showed nothing further than had already been noted. The hemoglobin was 67 per cent; the red blood cells, 3,600,000; the white blood cells, 10,600; polymorphonuclears, 82 per cent; eosinophils, 5 per cent; large lymphocytes, 5 per cent, and small lymphocytes, 8 per cent.

June 23, sixteen hours after fasting, there was moderate sweating, discomfort, anxiety and restlessness. The blood sugar during these symptoms was 0.0415 per cent; the blood carbon dioxide, 54.8 per cent by volume. The Wassermann reaction was negative. June 25, the basal metabolic rate was —6; June 29, the blood sugar was 0.050 per cent. July 3, the basal metabolic rate was —9. After one month of high carbohydrate diet and 2 grains (0.13 Gm.) of thyroid extract twice a day, the basal metabolic rate, July 28, was —1.

COMMENT

The unusual features in this case were the extreme bronzing of the skin, the asthenia, the relatively low blood pressure (at times 90 systolic and 50 diastolic), the low basal metabolic rate, the low fasting blood sugar and finally the attacks of vertigo, restlessness, confusion and delirium following short periods of fasting and accompanied by hypoglycemia as pronounced as occurs in insulin reactions. During these attacks there were no apparent alterations in the acid-base balance or in the inorganic phosphates of the blood. The blood sugar curve after the administration of 1.75 Gm. of dextrose per kilogram by mouth was somewhat lower than the average normal (table 5).

In several particulars, therefore, the symptoms which this patient presented were much like those observed in some cases of Addison's disease. There was, however, no pigmentation of the mucous membranes in this case. On the other hand, attacks of dizziness, of syncope and of delirium are known to occur in Addison's disease, and hypoglycemia has been noted in many cases. Porges [18] first drew attention to this and reported three cases of Addison's disease in which the blood sugars were 0.052, 0.033 and 0.067 per cent,

TABLE 2.—*Fasting Blood Sugar in Addison's Disease*

Case	Age	Blood Sugar, per Cent
1	33	0.077 0.071
2	47	0.081
3	40	0.091
4	35	0.073 0.076
5	48	0.082

respectively. He further found that extirpation of both suprarenals of the dog was followed by pronounced hypoglycemia, which was not due, as he showed by control experiments, to the shock of the operation itself. From these observations and experiments, he concluded that the asthenia or muscular weakness of Addison's disease was dependent on the hypoglycemia. Bernstein [19] has confirmed some of these observations, recording low blood sugars in four cases of Addison's disease. He gives the figures of 0.0472, 0.084, 0.05 and 0.0518 per cent in these cases. Somewhat later Rosenow and Jaguttis [20] reviewed the literature on hypoglycemia in Addison's disease and concluded that hypoglycemia was not constant in this disease. In twenty-eight recorded cases the figures for the fasting blood sugar varied from 0.012 to 0.115 per cent. In fourteen of the twenty-eight cases the figure was below 0.060 per cent and in eight above 0.080 per cent. In three of their own four cases the figure was above 0.85 per cent and in one it was 0.067 per cent. Low blood sugar curves are also recorded in Addison's disease.[21] In the records of the Johns Hopkins Hospital, there are five recent cases of Addison's disease in which blood sugar estimations were made. The diagnosis was confirmed in the two fatal cases at autopsy. The fasting blood sugar in all five cases was somewhat below normal, though hypoglycemia was not pronounced. The figures are given in table 2.

The occurrence of the attacks of hypoglycemia in this case of scleroderma, and the interesting resemblance which the symptoms in this patient bore to many of those in Addison's disease, led to a series of similar studies in the remaining cases as they came under observation. All these patients presented the characteristic appearance of generalized scleroderma, in various stages of development and in different degrees of severity. All were males, three between the ages of 15 and 30; two between the ages of 35 and 40, and three between the ages of 50 and 63. In none was there a familial history of the disease. In two cases, the symptoms of Raynaud's disease had preceded the scleroderma for eight and ten years, respectively, and in two there had been a period of weakness preceding the scleroderma. In four cases there had been swelling of the feet at onset, sufficient in one case to lead the patient's physician to make the diagnosis of "Bright's disease"; in three the initial symptoms had been stiffness of the joints with or without pain. In four cases, joint pains occurred at some time during the disease. Pigmentation of the skin was pronounced in three cases, moderate in three and absent in two. There were symptoms and signs of vasomotor disturbances in five of the eight cases. There was loss of weight of from 15 to 35 pounds (6.8 to 16 Kg.) in all. The tendon reflexes and cutaneous sensations were normal in all cases. The thyroid gland was not enlarged in any case. The eyegrounds were normal in all cases, and the Wassermann reaction was negative in all. The disease had lasted less than one year in three cases, from one to two years in three cases, and more than two years in two cases.

The results of further examinations are shown in the accompanying tables. Table 3 gives the average blood pressure readings in these patients; although occasionally rather low, these readings do not vary from the figures obtained in many forms of chronic disease. Table 4 presents the results of various chemical analyses of the blood made by Dr. Perlzweig. Except for the excretion of creatine in the urine in two cases, the figures do not deviate materially from the normal and conform fairly well with those published by Rowe and McCrudden [22] and by Gitlow and Steiner.[23] Table 5 presents an analysis of the fasting blood sugar and the blood sugar curves. In case 1, reported in detail, and in cases 3 and 7, the fasting blood sugar tends to be slightly lower than normal, and in all instances the blood sugar curves are rather low after the ingestion of 1.75 Gm. of dextrose per kilogram.

Similar blood sugar curves have been reported by Hoffmann [24] and by Rothman both in generalized and in circumscribed scleroderma. Such curves are not unusual in myxedema, and were observed in two of the cases of Addison's disease already referred to. The tabulation of the figures for the blood sugar in

TABLE 3.—*Blood Pressure in Scleroderma*

Case	Age	Systolic		Diastolic	
		Highest	Lowest	Highest	Lowest
1. J. de V.	39	125	90	80	50
2. C. J.	37	108	92	70	58
3. M. T.	63	148	115	80	60
4. O. N.	24	125	100	80	55
5. C. J.	15	128	110	85	65
6. W. M.	56	100	85	60	50
7. J. S.	54	90	80	70	50
8. H. T.	18	120 (femoral)		90	

case 1 emphasizes the degree of hypoglycemia that occurred during the attacks of delirium. Table 6 presents the figures obtained from the determination of the basal metabolic rate in six cases both before and after the administration of thyroid extract. From this table it can be seen that the administration of thyroid extract produced quite regularly an increase in the basal

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23. Gitlow, Samuel; and Steiner, Sydney: Scleroderma with Special Reference to the Blood Chemistry, Arch. Dermat. & Syph. **9**: 549 (May) 1924.
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metabolic rate in these patients. The basal rate in one instance reached +28, at which time there were mild symptoms of intoxication, such as nervousness, excessive sweating and headache. Symptomatic improvement was observed only in those patients who before treatment showed a somewhat lowered basal rate. The first patient, whose rate was the lowest, showed very distinct improvement, while two others with slightly decreased rates showed moderate improvement. This consisted in increased mobility of the extremities, increase in weight and increase in mental and physical activity. The disease itself, however, was not arrested in any of these patients.

TABLE 4.—*Chemical Analyses of Blood in Scleroderma*

Case	Date	Non-protein Nitrogen, Mg. per 100 Cc.	Inorganic Phosphates, Mg. per 100 Cc.	Chlorides, Mg. per 100 Cc.	Creatinine, Mg. per 100 Cc.	Creatine, Mg. per 100 Cc.	Uric Acid, Mg. per 100 Cc.	Carbon Dioxide Capacity (Van Slyke) per Cent by Volume	Calcium, Mg. per 100 Cc.	Total Urine Creatine in 24 Hours Gm.
1	10/29/25	33	3.08	527	1.88	....	5.0	57	...	....
	11/ 1/25	..	3.2	....	....	....	...	68.9	...	....
	6/ 3/26	..	....	....	....	....	...	54.8	...	....
2	11/22/25	32	....	...	....	....	...	....	...	....
4	1/19/26	..	3.9	...	....	....	...	....	...	....
	1/30/26	..	....	...	....	....	...	....	...	0.354
	3/ 2/26	..	....	...	1.5	2.54	...	....	...	....
5	12/ 3/25	36	....	...	1.4	....	...	65.7	...	....
	12/11/25	..	4.8	555	....	....	...	....	9.3	....
	1/19/26	..	3.5	...	....	....	...	....	...	....
	2/ 7/26	..	....	...	....	....	...	....	...	0.27
6	6/17/25	26.5	....	...	....	....	...	65.5	...	....

TABLE 5.—*Blood Sugar and Tolerance Test*
1.75 Gm. Dextrose per Kilogram of Body Weight by Mouth

Case	Date	Fasting, per Cent	½ Hour After Dextrose	1 Hour	2 Hours	4 Hours	Urine
1	10/27	0.052					
	10/27	0.047	Delirious				
	10/26	0.051					
	11/ 1	0.055	0.112	0.154	0.143	.....	No dextrose
	12/22	0.063					
	6/23	0.041	Faintness; confusion				
	6/29	0.050					
	6/30	0.061	0.143	0.167	0.117	.....	No dextrose
2	11/19	0.093	0.157	0.146	0.110	0.074	No dextrose
3	1/15	0.079	0.106	0.133	0.130	0.062	No dextrose
4	1/19	0.080	0.095	0.138	0.130	0.090	No dextrose
5	12/ 9	0.110	0.140	0.118	0.113	0.090	No dextrose
	1/15	0.085	0.116	0.134	0.109	0.074	No dextrose
6	.....	0.085	0.133	.....	0.154	.....	No dextrose
7	7/ 7	0.090					
	8/ 2	0.079					

It was hoped that some information might be obtained from the pathologic examination in the fatal case in this series. The results have been reported by Dr. MacCallum in detail. The essential features found at autopsy were the rigidity of the skin and muscles of the face, tongue, trunk and extremities, together with an extraordinary rigidity of the internal organs. There was atrophy of the left suprarenal gland and interstitial orchitis. There were found, further, acute and subacute mitral and aortic endocarditis; subacute adhesive pericarditis with Aschoff bodies in the myocardium; extensive lobular pneumonia, and hemorrhagic gastritis. The conclusion was that the patient, dying from the effects of the scleroderma, had suffered also from rheumatic fever. Histologic examination of the tissue revealed little to afford an explanation for their extraordinary rigidity. The connective tissue of the skin and parenchymatous organs proved as dense and thick as they are ever found in normal persons, but, according to MacCallum, were still within normal limits; he suggests that some general alterations in the colloid state of the tissues might take place which renders them rigid and immobile without changing their histologic structure.

It is obvious, indeed, that some profound alteration does take place during this disease, not only in the skin but in many tissues of the body. From the point of view of symptomatology, it may be of some significance that atrophic and sclerosing changes are occasionally found in the glands of internal secretion. In the fatal case in this series, there was atrophy of one suprarenal gland and interstitial orchitis. It seems probable, however, that such alterations occur as a part of the general disease, and that the atrophy and distortion of the parenchyma of these organs follow as a sequel to the changes taking place in the connective tissue stroma. Should these atrophic changes advance sufficiently far to cause a disturbance in the function of the organ, as they might well do, symptoms might arise to suggest disease of one or more organs of internal secretion. In this light, the symptoms would have to be looked on as secondary phenomena, and not as indicative of any disturbances in the glands of internal secretion that could produce the disease.

TABLE 6.—*Basal Metabolic Rates Before and After Treatment with Thyroid Extract*

Case	Date	Before Treatment	Amount of Thyroid Extract	After Treatment	Improvement
1	10/23	—23			
	10/29	—13	4 grains daily for 20 days		
	11/20	....	.....	— 7	
	6/20	....	.....	— 6	
	7/ 3	— 9	2 grains daily for 25 days		
	7/28	....	.....	— 1	+++
2	11/12	— 4	2 grains daily	....	?
3	12/ 4	....	1 grain, December 4 and December 11		
	12/12	....	.....	+14	
	1/ 8	....	.....	+ 9	0
4	1/22	+11			
	2/ 2	+10	From 3 to 6 grains daily		
	2/19	....	.....	+28	0
5	12/11	—11	3 grains daily		
	12/29	....	.....	+ 2	
	1/12	....	.....	— 1	
	2/24	....	.....	— 4	+++
6	6/19	+10	From 1 to 3 grains daily	....	0
7	8/ 3	—13	3 grains daily	....	++

The study of the cases in this series would lead one to uphold this view. Occasionally, symptoms or signs suggesting some minor disturbance in the function of the glands of internal secretion were noted, and in this series, as in the cases recorded in the literature, these symptoms were most frequently ascribed to abnormalities in the function of the thyroid gland. Yet it is probably not permissible to attach an etiologic significance to such functional or even anatomic abnormalities. It seems much more probable that these disturbances are secondary to possible alterations in the glands of internal secretion produced by the extraordinary generalized disease which is now spoken of as scleroderma.

SUMMARY

In a case of generalized scleroderma with deep pigmentation, attacks of mental confusion and delirium occurred repeatedly after short periods of fasting. These attacks were associated with hypoglycemia. The resemblance between many of the symptoms in this case and those occurring in some instances of Addison's disease was noteworthy.

In a study of five other cases of generalized scleroderma, the blood sugar, as well as the other chemical constituents of the blood, did not deviate materially from the normal.

In three cases the basal metabolic rate tended to fall below normal and the administration of thyroid extract in these cases was attended by symptomatic improvement.

In one fatal instance of acute and extensive scleroderma in a young man, autopsy disclosed atrophy of one suprarenal gland and interstitial orchitis.

It is possible that disturbances in the function of the glands of internal secretion, which occasionally accompany scleroderma, may in some instances occur as a result of involvement of these organs by the generalized process, and thus do not have a direct bearing on the etiology of scleroderma.

ABSTRACT OF DISCUSSION

DR. H. A. CHRISTIAN, Boston: Dr. Longcope's presentation hardly admits of any discussion because it is largely a statement of fact. I can report a few additional cases, with observations covering some of the points in which he was interested. I have had the opportunity to study four of these cases, three of which presented the picture of scleroderma as far as the skin manifestations were concerned, and did not show any acute complications. The fourth case was similar in nature but a pneumonia developed with a subsequent empyema which resulted fatally. I had an opportunity to study that patient only during the stage of acute infection, and no observations on metabolism could be made. In the three cases in which we studied the metabolism, it was in no way different from the average normal. One showed plus twelve, one showed plus one, and one showed minus two. These three cases did not show any particular departure from the normal as far as blood pressure was concerned. Two of the patients had a systolic pressure of 120, one with a somewhat elevated diastolic pressure of 90, the other with a diastolic pressure of 60. The third patient, who was elderly, had a systolic pressure of 172 with a diastolic pressure of 76. These three patients did not give any evidence of disturbance in the thyroid leading to hypothyroidism or in the suprarenals as far as blood pressure was concerned; they were, to a certain degree, asthenic, and all were pigmented. They were all females. I should like to call attention to another feature of scleroderma which is of great interest, namely, a change in the terminal phalanges, sclerodactylia, which occurred in two of the patients. They showed atrophy of the terminal bones of the fingers with accompanying atrophy of the skin that led to a little superficial ulceration on the finger tips. This is a very striking condition, and sometimes helps in making the diagnosis of scleroderma which may accompany it and not be particularly marked in degree. One might say that the condition represents a disturbed metabolism, possibly a decalcification, because it is a bone lesion. However, it is a bone lesion limited to the terminal phalangeal bone and probably is an accompaniment of the pressure of the atrophied sclerodermic skin, possibly more mechanical than metabolic in cause, since the other bones showed no change.

DR. JOHN H. STOKES, Philadelphia: We need more thorough investigation into the metabolism, bodily behavior and the autopsy data of patients with scleroderma. As a dermatologist, I should like to say that scleroderma is not a disease but a symptom complex of considerable range. Identical pathologic changes underlie the localized forms, such as morphea, and there is even a related disease of the new-born infant, sclerema, in which, without microscopic pathologic manifestations, a physicochemical change takes place in the body fat that results in a diffuse hardening, such as Dr. McCollum observed in the organs in the postmortem examination in Dr. Longcope's acute case. The pathologic changes of scleroderma, so far as the skin is concerned, are anything but specific—simply an endarteritis of the capillary bed with a huge increase in connective tissue—essentially, perhaps, a fibrosis such as follows reduction in blood supply in other parts of the body. As Dr. Longcope has suggested, there is reason to doubt the specificity of endocrine changes in scleroderma, for one finds it associated with all degrees of hypothyroidism and hyperthyroidism, with apparently normal endocrine mechanism, and with the addisonian picture which points to disease of the suprarenals. From a considerable portion of the group there stand out the signs in the skin, especially pigmentary anomalies, which one usually associates with injury to the chromaffin nervous system. The only comfort one derives from the finding of a low basal metabolic rate is the knowledge that thyroid can be given without producing undue constitutional disturbance. I doubt myself whether the action of thyroid in scleroderma is specific. Its effect is on the vascular bed of the skin as in hyperthyroidism, in that its use leads to a capillary flush, which combats the endarteritic constriction that seems to underlie the skin changes. It is possible to watch the gradual invasion of the sclerodermatous patches by this vascular dilatation and flushing. Clinically speaking, the etiologic background of scleroderma is a chronic intoxication, inflicting injury on the endocrine machinery and the nervous system. One sees localized scleroderma follow nerve injury; generalized scleroderma follows abruptly on acute tonsillitis with great prostration. I recall a woman whose jaws had set so far that it taxed the ingenuity of a clever nose and throat man to remove the chronically septic tonsils. She recovered gradually. On the other hand, one sees the patient who says that after a good cleaning out with calomel he feels like a new man and can stretch all over the bed. Still others, who begin to stiffen but do not become actually sclerodermatous, have allergic backgrounds and are much relieved by the avoidance of specific proteins. The vascular and nerve injuries produced by chronic arsenical intoxication have seemed, in some cases, to be at the bottom of the trouble. One even gets to think, sometimes, that the victims of habitual nervous overload, the trouble bearers of this world, are selected for the doubtful distinction of a sclerodermatous end. The patient who has a low basal metabolic rate, whose focal infections are early treated or removed, and who is transported to a warm, dry, sunny climate seems, under thyroid medication, to have the best outlook. Sunbaths and colon irrigations seem to help at times.

DR. BENJAMIN JABLONS, New York: The point raised by Dr. Stokes regarding the relationship to the peripheral circulation in these conditions is a very important one. We often find these cases associated with peripheral vascular disturbances, such as are seen in patients suffering from thromboangitis obliterans. The point made by Dr. Christian with regard to the apparent necroses is a very helpful diagnostic indication. This change was manifest in the three cases that I have observed. The patients were women, so that the apparent frequency of this disease in females is deserving of note. The relationship to the capillary circulation is important because in several of these patients symptomatic relief has resulted from the injection of sodium citrate. It does exercise a beneficial effect on the peripheral capillaries. These patients, complaining as they do of severe intractable pain, are relieved by the intravenous administration of such solutions. Hypertonic saline solution injected intravenously is beneficial. The capillary changes in the skin are interesting but are not very helpful in the differential diagnosis. What is of help in differentiating between conditions associated with changes in the peripheral blood vessels is the determination of the pulse pressure of both arms. We know that normally there is a slight difference between the systolic pressure in one brachial artery and that in the brachial artery in the opposite arm. The pulse pressure is constant in both these extremities. We have seen early cases of localized scleroderma followed by thrombo-angiitis obliterans. I think that this is worthy of note.

Aspects of Behavior Disorders.—Admitting all the present inadequacies of psychiatric knowledge, it is true nevertheless that the chief barriers to securing the benefit of such knowledge as we do possess are presented by the inelasticity of the criminal law.—Adler, Herman M.: *Am. J. Psychiat.*, Nov., 1927.

LOCAL ANESTHESIA IN OPHTHALMIC SURGERY*

C. S. O'BRIEN, M.D.
IOWA CITY

[EDITORIAL NOTE.—This paper, together with that of Dr. McReynolds, which follows it, concludes the symposium on ophthalmology. The papers of Drs. Fox, Parker and Dunphy were published last week.]

Local anesthesia, properly used, appeals to practically all ophthalmic surgeons as being the method of choice in most of the surgical procedures with which they are concerned. There are many operators who feel that, while they would prefer to use a local anesthetic, they will fail to get a painless field of operation; consequently, they fall back on general anesthesia with its many disadvantages.

It is not enjoyable for any surgeon to operate, under a local anesthetic, on a patient who is in constant pain; with proper study and attention to detail, these cases are surely few and far between. If local anesthetics can be made to produce anesthesia regularly, unquestionably they are desirable. Chloroform, ether, nitrous oxide or ethylene always produce anesthesia, but along with this go so many disadvantages that it is desirable in ophthalmic surgery to administer them as infrequently as possible. It is not always possible to obtain complete anesthesia with procaine hydrochloride or cocaine, but in most of the few cases in which it is not obtained, the pain is so slight and so transient as to be practically negligible.

Of the many advantages of a local over a general anesthetic, a few are as follows:

1. Foremost is the question of safety. The small amounts of weak solutions used in ophthalmic surgery practically preclude any danger of death, but with a general anesthetic we not only take a chance while the patient is being anesthetized but have the after-effects to take into consideration; i. e., the postoperative pneumonias, the kidney involvements, and other complications.

2. The greater cooperation of the patient while undergoing operative procedure. This cooperation is always desirable and sometimes very necessary.

3. The unimpeded operative field. In working with general anesthetics oftentimes we have the mask, tubes, hands of the anesthetist and other paraphernalia in our way. Also, it is more difficult to keep the operative field sterile when the anesthetist's hands are so near.

4. Freedom from the danger of vomiting during the operation, with a possible contamination of the operative wound.

5. Freedom from venous congestion, with its accompanying bloody field such as is present in nitrous oxide, ethylene and certain stages of ether anesthesia. On the contrary, the operative field is as dry as it is possible to make it when epinephrine is combined with the local anesthetic.

6. The fact that it matters not if a patient has a heart or kidney lesion.

7. The greater speed that may be maintained when doing a series of operations one after another.

It seems that usually the only call for general anesthesia is in young children, in cases of acute congestive glaucoma and in operations such as that of Krönlein.

* From the Department of Ophthalmology, State University of Iowa College of Medicine.
* Read before the Section on Ophthalmology at the Seventy-Eighth Annual Session of the American Medical Association, Washington, D. C., May 20, 1927.

METHODS OF SECURING LOCAL ANESTHESIA

Instillation.—In ophthalmic surgery this means simply dropping the anesthetic into the conjunctival sac and keeping the lids closed following the instillation. By this method complete anesthesia of the cornea and conjunctiva and a partial deadening of the sensory nerves of the iris and ciliary body are secured.

Infiltration.—In this method the solution of anesthetic is injected into the immediate region of operation, infiltrating the tissues on which work is to be done. This process gives deep anesthesia but disturbs the anatomic relations so markedly, in most cases, that it is not as desirable as the following method.

Peripheral Nerve Block.—In this method the nerve or the surrounding tissues are injected in the region of a ganglion or a peripheral nerve trunk at some distance from the field of operation. Consequently, the anatomic relations in the field of operation are not disturbed.

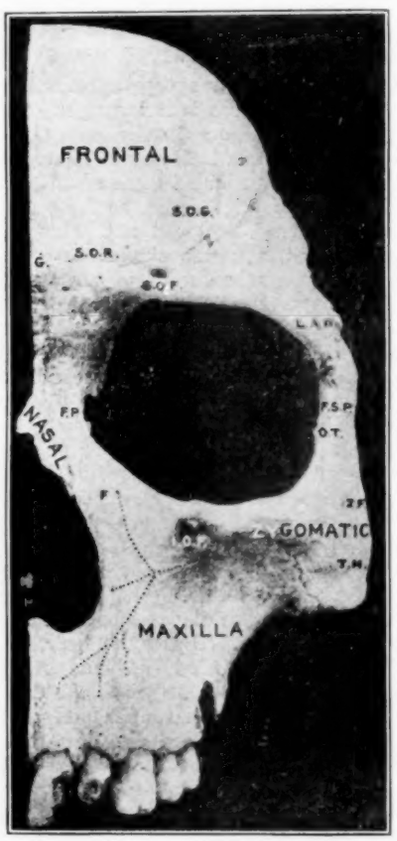

Fig. 1.—The bony orbital margin (Whitnall): *S. O. F.*, supra-orbital foramen; *I. O. F.*, infra-orbital foramen, surmounted by an infra-orbital tubercle; *M. A. P.*, medial angular process of frontal bone; *F. P.* frontal process of maxilla; *Z. F.*, zygomaticofacial foramen; *O. T.*, orbital tubercle of zygomatic bone; *F. S. P.*, frontal-sphenoidal process of zygomatic bone; *L. A. P.*, lateral angular process of frontal bone.

ANESTHETICS

In all there are more than two dozen drugs in use as local anesthetics. Perhaps it is well for one to choose two or three of these, learn to use them properly, and confine oneself to this limited number. Using only two or three, it is easier to familiarize oneself with the peculiarities of each of them. It has been and is my custom to use butyn for instillation, and procaine hydrochloride for both infiltration anesthesia and nerve block. In addition to these, cocaine is used for infiltration anesthesia, in one operation only; namely, cataract extraction.

Butyn is used exclusively in instillations, since it acts rapidly, is seemingly nontoxic in the amounts used, and produces deep, lasting anesthesia. It should be used in a freshly prepared 2 per cent solution which has been sterilized in the autoclave or by boiling. It does not produce mydriasis or have a deleterious effect on the corneal epithelium; the only bad feature is its vasodilator effect, and this may be controlled by the instillation of a 1:1,000 solution of epinephrine hydrochloride.

Procaine hydrochloride, in a strength of 2 per cent in physiologic sodium chloride solution, is practically a perfect anesthetic for infiltration anesthesia and nerve

block. It should be freshly prepared, sterilized in the autoclave or by boiling, and combined with epinephrine just prior to injection. When used in this way it is possible to inject large amounts without fear, since its toxicity is quite low. Before injection, one should decide on the amount of solution to be used and add epinephrine in quantities such that the total amount received by the patient will not be more than 8 or 10 minims (0.5 or 0.6 cc.).

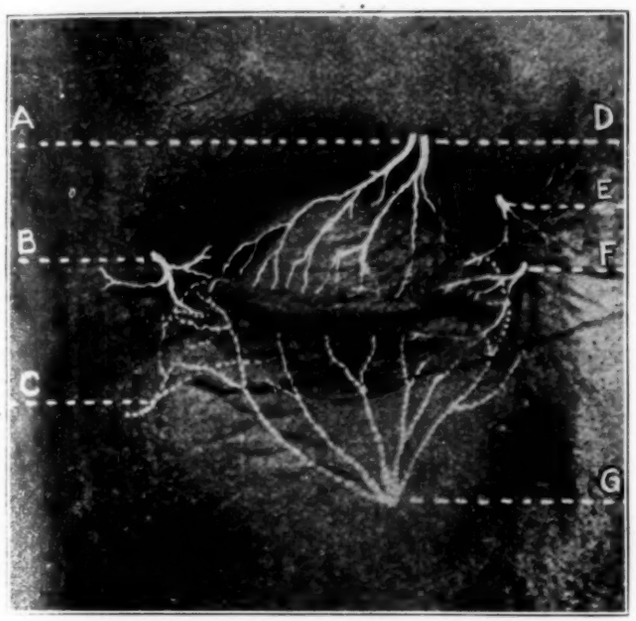

Fig. 2.—The palpebral branches of the fifth nerve (Whitnall): *A*, supra-orbital; *B*, lacrimal; *C*, zygomaticofacial; *D*, frontal; *E*, supratrochlear; *F*, infratrochlear; *G*, infra-orbital.

Cocaine, as used for subconjunctival injection, prior to cataract extraction, is prepared in a strength of 2 per cent in sterile water and sterilized in the autoclave or by boiling.

As in all other surgical procedures, one's instruments should be as nearly above reproach as is possible. The Labat syringe and needles satisfy the most exacting, and with the addition of an ordinary tuberculin syringe, one can handle all classes of cases. Needles should always be sharp, of very fine gage, and in lengths of approximately 20 and 50 mm. The initial puncture with a fine gage, sharp needle is not very painful, but a large, dull needle unnecessarily hurts, and a great deal of the confidence of the patient is lost even before operation is begun.

To render the tissues in any region properly insensitive with a local anesthetic, one must know the anatomy of the sensory nerve supply. In ophthalmic surgery the only sensory nerves with which we have to deal are the branches of the first and second divisions of the trigeminal or fifth cranial nerve. Except in cases of enucleation or evisceration or in an eye that is blind, it is usually not wise to inject deep into the orbit for fear of injuring some of the structures lying therein. Consequently, in operations on the globe, conjunctiva and lids, instillation anesthesia must be depended on, combined, when necessary, with subconjunctival infiltration or nerve block, at the points of emergence of the terminal branches of the fifth nerve at the rim of the orbit. By injecting into the region of these nerves at the orbital rim, we do not disturb the anatomic relations as they would be were the operative field infiltrated.

ANATOMY OF THE SITE OF INJECTION

To review briefly the anatomy with which we are concerned, I shall take up some relations of the structures of the orbit and the surface anatomy of the orbital rim.

The structure within the orbit with which we are most concerned is the ciliary ganglion. This small ganglion lies about 15 mm. posterior to the globe, between the lateral rectus muscle and the optic nerve. Running forward from it are the short ciliary nerves that course through the orbital fat to enter the globe posteriorly. Also the two long ciliary nerves from the nasociliary branch of the ophthalmic division lie in this vicinity, and may be caught with the same injection which anesthetizes the ganglion and the short ciliaries.

In the surface anatomy of the orbital rim, most of the landmarks may be identified by the sense of touch. The supra-orbital nerve supplying the upper lid, forehead and scalp by its palpebral branches leaves the orbit through the supra-orbital notch or foramen, which lies about 25 mm. from the center of the glabella, at the junction of the inner and middle thirds of the superior orbital margin, and may be felt as a notch under the skin at this point. Oftentimes there is another notch just internal to this which carries the other division of this nerve, provided it divides before leaving the orbit.

The supratrochlear nerve supplies the skin and conjunctiva of the mesial portion of the upper lid; also the lower, middle part of the forehead. This nerve comes forward out of the orbit just over the pulley of the superior oblique muscle. The trochlea or pulley may be felt deep in the upper inner angle of the orbit, a short distance above the medial palpebral ligament.

The infratrochlear nerve supplies the conjunctiva and skin of both eyelids in their median portions; also the caruncle and lacrimal sac. It emerges from the orbit just below the trochlea.

The lacrimal nerve supplies the conjunctiva and skin of the upper lid in its lateral aspect, the external can-

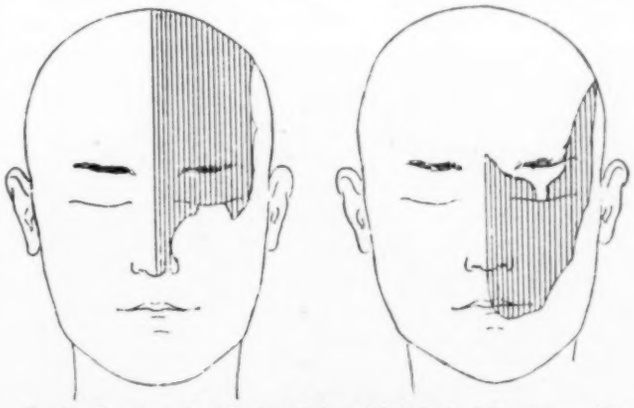

Fig. 3.—Cutaneous distribution of the ophthalmic (at left) and maxillary (at right) divisions of the trigeminal nerve, after Zander (1897). The shaded areas show loss of touch and pain after section of the respective nerves. It will be noted that there is considerable overlapping of the areas.

thus and also the lacrimal gland. This nerve emerges from the orbit just above the external canthus. The exact location lies between the zygomaticofrontal suture above, and the orbital tubercle of the zygomatic bone below; both these structures may be felt with the finger placed just inside the lateral orbital rim.

The infra-orbital nerve supplies the lower eyelid, cheek, side of the nose, lacrimal sac and temporal region; also, there is some supply to the skin of the

upper lid, both laterally and mesially. The nerve emerges from the orbit on to the face through the infra-orbital foramen in the maxilla. This foramen is about 10 mm. beneath the skin surface and just below the zygomaticomaxillary suture, over which the infra-orbital tubercle may be felt.

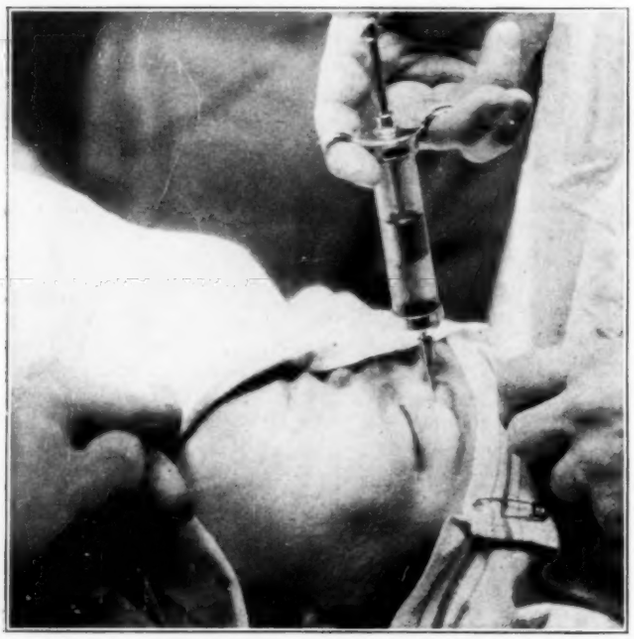

Fig. 4.—Peripheral block of the supra-orbital nerve.

The zygomatic branch of the maxillary nerve divides into the zygomaticotemporal and the zygomaticofacial; the former supplies part of the skin of the anterior temporal region, while the latter runs to the region of the lateral aspect of the lower lid and the cheek. These two nerves pass out of the orbit through foramina in the zygomatic bone.

From the foregoing description it is evident that sensation to the upper lid is supplied by the supra-orbital, supratrochlear, infratrochlear, lacrimal and infra-orbital nerves; and to the lower lid by the infra-orbital, supratrochlear, infratrochlear, lacrimal and zygomaticofacial nerves. There is a marked overlapping of the areas supplied by these nerves; hence it is a rare thing to get anesthesia from an injection in the region of the trunk of only one nerve. Further, each individual presents some variation in the distribution of these nerves—they are not even exactly the same on the two sides of the face. On the anterior surface of the tarsal plate a nerve plexus is found, and another plexus is located at the free margins of the lids. Sensory fibers to the extra-ocular muscles run forward with the third, fourth and sixth cranial nerves.

METHODS OF SECURING ANESTHESIA

Instillation Anesthesia.—One drop of a 2 per cent solution of fresh, sterile butyn is instilled into the conjunctival sac every two minutes for five doses. Between the instillations of butyn, 1 drop of a 1:1,000 solution of epinephrine hydrochloride is used; this drug not only enhances the action of the butyn but also produces hemostasis, thus producing a dry operative field.

Infiltration Anesthesia.—This is produced by injecting into the operative area sterile, 2 per cent procaine hydrochloride solution containing 2 drops of a 1:1,000 solution of epinephrine hydrochloride per cubic centimeter.

Subconjunctival Injections.—These are injections of 2 per cent procaine hydrochloride solution just under the conjunctiva. Each cubic centimeter of the solution contains 2 drops of a 1:1,000 solution of epinephrine hydrochloride.

Peripheral Nerve Block.—This is produced by injecting the sensory nerve or the region of the nerve trunk with a fresh, sterile, 2 per cent solution of procaine hydrochloride to which 1 drop per cubic centimeter of a 1:1,000 solution of epinephrine hydrochloride has been added. There are six nerve trunks and the ciliary ganglion which may be injected. In certain operations, the blocking of one of these is sufficient; in other operations, several must be blocked in order to produce anesthesia in the operative field.

To block the supra-orbital nerve, it must be injected as it comes through the supra-orbital notch or foramen. This lies directly under the skin and orbicularis muscle in the upper rim of the bony orbit, from 2 to 2.5 cm. from the midline of the face. At about the junction of the inner and middle thirds of the supra-orbital margin, and at about the point where the rounded, indistinct inner third joins the outer sharp edged rim, the notch may be felt. With the short needle, an injection of 1 cc. is made, either into the notch (or foramen) or as near to it as possible. This injection should be posterior to the tarso-orbital fascia.

One may inject the infra-orbital nerve in the infra-orbital foramen by approaching either through the mucous membrane of the mouth or through the skin of the cheek. By feeling along the center of the lower orbital rim, one may encounter the infra-orbital

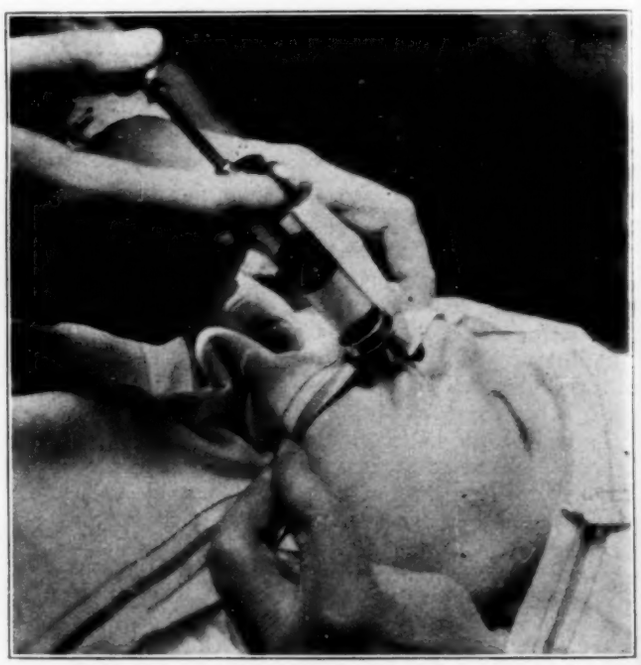

Fig. 5.—Peripheral block of the infra-orbital nerve.

tubercle just over the zygomaticomaxillary suture—the foramen lies usually from 5 to 10 mm. directly below this, with the long axis of the canal running up and out. It lies from 2.5 to 3 cm. lateral to the midline of the face. The needle is entered at the side of the ala of the nose, pointed upward and outward toward the

outer canthus and forced through to the bone. The foramen is located with the needle, which is then forced about 0.5 cm. into the canal, and from 1 to 2 cc. of procaine hydrochloride solution injected.

To block the supratrochlear or the infratrochlear nerve, one must locate the pulley of the superior oblique

Fig. 6.—Peripheral block of the lacrimal nerve.

muscle and inject about 1 cc. of solution either directly above or below this structure, the injection above catching the supratrochlear and the injection below catching the infratrochlear. The pulley lies about 1 cm. back of the rim in the upper, inner angle of the orbit. This angle is felt to be quite rounded, and rather deep in the trochlea is felt, the temporal edge being more sharply defined than the nasal edge. To inject this region the bony upper and inner orbital wall should be followed to a depth of from 1 to 1.5 cm., at which point 2 cc. of the procaine hydrochloride solution should be injected.

The surface markings that guide one to the proper point for injecting the lacrimal nerve as it emerges from the orbit are as follows: The nerve emerges just slightly above the level of the external canthus and between the orbital tubercle below and the zygomaticofrontal suture above. The suture may be recognized as a notch just above the center on the inner side of the lateral orbital rim, while just below is felt a small bony prominence, which is the orbital tubercle. An injection down to the bone in this region, and just within the orbital rim behind the tarso-orbital fascia, will render insensitive the terminal branches of the lacrimal nerve.

The zygomaticofacial nerve must be blocked by an injection of 1 or 2 cc. of solution into the region just lateral to the junction of the floor and the lateral wall of the orbit. This injection should be deeply placed, just superficial to the zygomatic bone and about 1 cm. from the orbital rim.

To infiltrate the region of the ciliary ganglion and block the ciliary nerves which supply the globe, I make use of the long (50 mm.) needle. The needle is entered in the lateral aspect of the inferior culdesac between the lateral and inferior rectus muscles, pushed through the conjunctiva and other tissues to a depth of from 3 to 3.5 cm., and 2 cc. of a 2 per cent solution of procaine hydrochloride containing 4 drops of epinephrine hydrochloride is injected. The needle should point toward the apex of the orbit, and one should try to picture the ganglion lying between the lateral rectus muscle and the optic nerve, about 3 cm. back of the orbital margin.

In any patient with whom there is likely to be trouble as a result of fear and nervousness, it is wise to administer a hypodermic injection of one-fourth grain (16 mg.) of morphine, and $\frac{1}{300}$ grain (0.2 mg.) of scopolamine, about one hour prior to operation. This will rarely be needed, however. Just recently, I have been using 6 grains (0.4 Gm.) of soluble barbital by mouth, one hour previous to all local anesthetics, but it is too early to report the results. This drug, in addition to producing mental quietude, according to Tatum, Atkinson and Collins, reduces the danger of poisoning from local anesthetics, such as cocaine and procaine hydrochloride. As an added point in the handling of the patient on the operating table, it is unwise to ask repeatedly whether the operation is painful; if it is painful, it is usually not difficult to see that such is the case; while if it is not, it is poor judgment to suggest it to the patient and let him feel that the surgeon does not have confidence in the anesthesia.

ANESTHESIA USED IN SPECIFIC OPERATIONS

Cataract Extraction: Instillation anesthesia is begun and carried to the fourth drop. At this stage a subconjunctival injection is given, just above the cornea, as close to the upper limbus as is possible. This injection is of equal parts of a 2 per cent cocaine solution and a 1:1,000 solution of epinephrine hydrochloride. With a tuberculin syringe, about 3 minims (0.2 cc.) is injected. This and other operations involving iris manipulation are the only ones in which I use cocaine, but here it serves several purposes. It enables one to

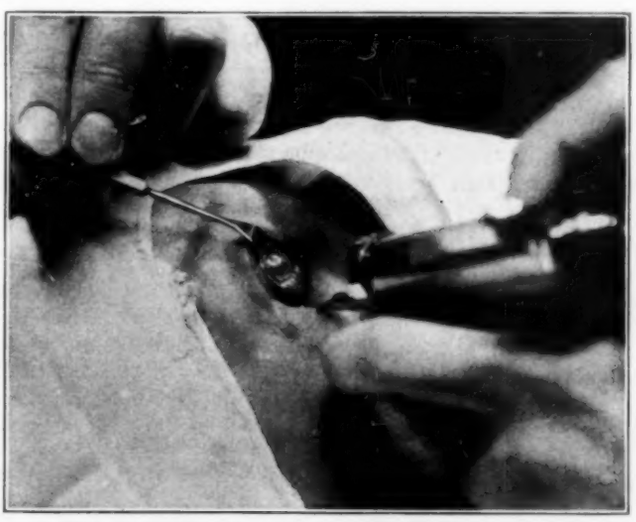

Fig. 7.—Infiltrating the region of the ciliary ganglion.

obtain absolute iris anesthesia such as instillations alone do not give; by its dissection of the upper conjunctiva from the subconjunctival tissues, it is of assistance in obtaining a large conjunctival flap; it produces an upward dilatation of the pupil, enabling one to express the lens more easily, especially in simple extraction; and,

lastly, more complete hemostasis is obtained. Following this injection, the instillations are resumed. The injection which I use to prevent squeezing of the eyelids during cataract extraction is simply a modification of the Van Lint procedure, but seems much more simple and gives more complete akinesis. By dissection, it is found that the fibers of the seventh cranial nerve which supply

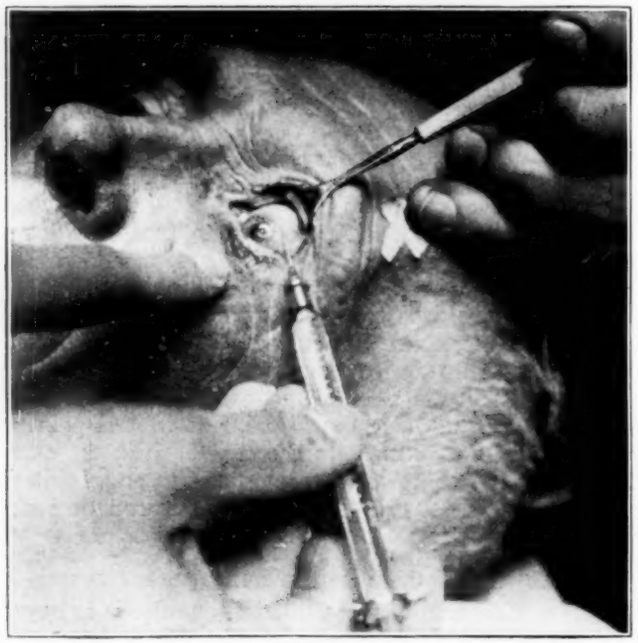

Fig. 8.—Subconjunctival injection.

the orbicularis oculi and the accessory muscles of lid closure are easily injected at a point near the anterior margin of the parotid plexus. The point of injection is just anterior to the tragus of the ear, below the posterior portion of the zygomatic process and directly over the condyloid process of the mandible. Going straight inward with a short needle, one strikes the bony condyloid process at a depth of about 1 cm. As soon as this bone is felt with the needle I begin injecting the 2 per cent solution of procaine hydrochloride, and, gradually withdrawing, inject about 2 cc. of solution. Lid paralysis begins to appear usually in from thirty to sixty seconds and, after a very few minutes, it is so marked that the patient is unable to close the eyelids, and the palpebral fissure is widely opened.

Discission, iridectomy, iridotomy, iridotasis, corneoscleral trephine, and other operations on the iris should have not only the usual instillation anesthesia but the subconjunctival injection as well; i. e., the same injection as that described above for cataract extraction.

Enucleation and Evisceration: Following instillation anesthesia, over the attachment of each rectus muscle a subconjunctival injection of 1 cc. of 2 per cent solution of procaine hydrochloride is given. This is followed by injection of the region of the ciliary ganglion, after which the operation may be begun.

Operations on the Lacrimal Apparatus: For extirpation of the gland, instillation anesthesia is given, followed by subconjunctival infiltration at the outer portion of the upper fornix. Prior to extirpation of the lacrimal sac, instillation anesthesia is used, followed with a 2 per cent procaine hydrochloride solution into the sac, through the natural channel if possible. As a final step the supratrochlear, infratrochlear and infra-orbital nerves are blocked.

Pterygium, peritomy, epithelioma, superficial growths on the globe and like conditions usually may be operated on without pain after instillation anesthesia alone. Symblepharon, in addition to instillations, requires infiltration at the site of operation.

Chalazion, an operation so simple and so minor from the patient's point of view before submitting to it, often assumes the proportions of a major procedure, because of the intense pain encountered in its removal or curettage. Directly in front of the tarsal plate and also along the lid margin lie sensory nerve plexuses. I have dissected out many chalazia, but it is only during the last year that they have been done painlessly. If one will use instillation anesthesia first, and then follow with an infiltration of the very margin of the lid, absence of pain will follow. This method will sometimes mask the anatomic relations, and preference may be given to blocking the nerves supplying the area. If the chalazion is in the lower lid, one should block the infra-orbital and perhaps the infratrochlear and lacrimal nerves, depending on the side to which the tumor lies. If it is in the upper lid, the supra-orbital and perhaps the supratrochlear and lacrimal nerves will have to be blocked; if it lies to the extreme side, even the infra-orbital may reach to the point and require blocking. The infiltration method is preferable since it is shorter and just as efficacious.

Electrolysis for relief of trichiasis requires infiltration of the lid margin.

Following instillation anesthesia, it is necessary to block the supra-orbital, lacrimal supratrochlear, and infratrochlear nerves in tarsectomy of the upper lid. In canthoplasty and tarsorrhaphy, instillation anesthesia

Fig. 9.—Injection to prevent squeezing of the eyelids during cataract extraction.

may be used, followed by infiltration of the tissue at the external canthus. In ptosis, ectropion or entropion of the upper lid or in other plastic operations confined to the lid, I use instillations, followed by a block of the supra-orbital, lacrimal, supratrochlear and infratrochlear nerves, and often need an infra-orbital block to obtain complete anesthesia. In ectropion of the lower lid, the infra-orbital block combined with lacri-

mal, zygomaticofacial and infratrochlear injections will produce anesthesia.

Operating in squint cases under local anesthesia requires handling the muscle with very little pull. Instillation anesthesia followed by deep injections into the belly of the muscle produce an almost insensitive field. If one will put only slight traction on the muscle it is usually not so painful as to warrant general anesthesia.

Skin grafts used in plastic operations are usually taken from the outer aspect of the thigh. These grafts may be taken under local anesthesia, as pain is not caused. Using a long needle the skin is infiltrated above the point at which it is desired to remove the graft, and in a line at right angles to the long axis of the thigh; in other words, a segment of a circle around the thigh is infiltrated. In this manner, the cutaneous femoris lateralis, and the cutaneous femoris posterior, the sensory nerves supplying this area, are blocked.

Fig. 10.—Lid paralysis about three minutes following injection of the branches of the seventh nerve.

CONCLUSIONS

It is felt that local anesthesia is the safest, easiest, and altogether the best method in practically all ophthalmic operations in juveniles and adults.

To perfect one's technic, and without this results will be unsatisfactory, it is necessary to make a study of the anatomy of the orbit and surrounding tissues. This is best done by actual dissection.

Improvement on or simplification of the foregoing methods is desirable, and the more common use of local anesthesia would undoubtedly produce such improvement.

Physiologic Basis for Health Habits.—Health, strength and vigor in any person is health, strength and vigor of the vital organs of the body, including the nerve centers of the spinal cord, and it should be clear that this strength comes from the use of muscles of the body, especially the trunk muscles in youth. If we would lay the foundation for health, strength and power, we must run, jump, climb, swim and engage in play and sports that have engrossed man since earliest times. Yet the tendency of civilized life is toward work which demands long hours of sitting down in movies and theaters and we even travel from place to place sitting down, in automobiles, trains or subways.—Report, Joint Health Committee, Health Education, p. 25.

THE CRYSTALLINE LENS SYSTEM*

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AN APPEAL TO THE GENERAL PROFESSION FOR CLOSER COOPERATION IN THE WORK OF THE OPHTHALMOLOGIST

For many years I have been impressed with the conviction that ophthalmology was too remotely separated from the activities of the general profession, and that there is a need to stimulate, even though in a slight degree, a spirit of mutual interest and cooperation. It is far from my purpose to indulge in any criticism of the general practitioners, but rather to suggest an extension of their field of labor in harmony with their scientific attainments and well developed sense of professional responsibility. Ophthalmologists appreciate very sincerely the attitude of the general profession in so completely delegating to them everything that is comprised within the generally accepted realm of ophthalmology. So many times have my colleagues in general medicine proclaimed their ignorance of ophthalmologic problems that I wish to take this occasion to assure them that ophthalmologists would welcome most heartily a closer cooperation on the part of the general profession in the work of their specialty. Indeed, it is difficult for the general practitioner or general surgeon to get away entirely from all responsibility in connection with ophthalmology. It is the general surgeon or the family physician who most frequently sees for the first time patients with ocular defects, and throughout the course of these pathologic conditions, the ophthalmologists feel the necessity of constant consultation and conference with those who are interested in the general welfare of the patient. They realize that they must keep in close touch with general medicine, in order to appreciate and manage judiciously the varied problems that especially confront them.

When the fact is recalled that, with the single exception of traumatic defects of the lens, all other lenticular changes have a systemic background, it must be remembered at the same time that the lens is not an isolated structure independent of the rest of the body. There is no other anatomic structure that is so distinctly mathematical in its form and function as the crystalline lens, and its correct, normal, physiologic action is always dependent on the concurrent action of the general processes of nutrition. The lens can be studied as a distinct anatomic entity, and yet it must receive its vitality and its usefulness through the nutrition derived ultimately through the blood stream.

Ophthalmologists feel that it is quite necessary that the general profession should be in close touch, not only with the factors involved in lenticular changes, but also with the prognosis which so intimately concerns the patient. The patient always desires to know what the outcome of any lenticular changes will be, and the ability of the ophthalmologist to fulfil the expectations of the public and the profession will depend in large measure on the intelligent cooperation of the internist, and a full appreciation of the difficulties and possibilities involved. If the patient is assured by the internist on whom he has learned to lean confidently for dependable counsel that a certain definite result is sure to

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* Read before the Section on Ophthalmology at the Seventy-Eighth Annual Session of the American Medical Association, Washington, D. C., May 20, 1927.

follow, and it is found on careful analysis that these expectations cannot be realized, a most distressing disappointment will many times result. The sole function of the lens is to refract the rays of light in such a way that a clear image of an object is formed on the fundus, and if, for any reason, there is a disturbance of the receiving areas of the eye, then no amount of surgical dexterity can avoid failure.

I appeal to the general profession to share with ophthalmologists more of this work and more of the responsibility. I am convinced that this would redound to the credit of the medical profession and to the benefit of the public. A man who can fathom the deep seas of serology, neurology and internal medicine could give a very helpful service to practical ophthalmology if he would only divest himself of the notion that the eye is clearly beyond the domain of his proper activities. The general practitioner is the only one, perhaps, in a position to warn the patient of the perils confronting him in case of ocular trouble. He is the one who must initiate measures of relief or overcome the error of placid inaction. It is his knowledge of the prognosis

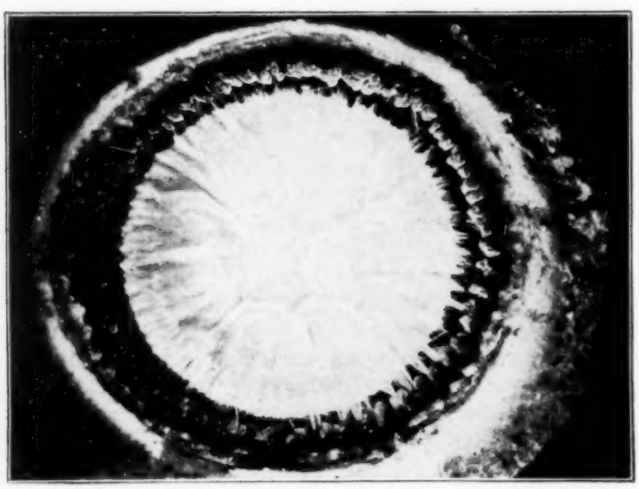

Fig. 1.—Attachment of suspensory ligaments to lens, illustrating extent to which attachments advance over anterior capsule, and also origin of attachments posterior to ciliary processes.

in ocular disease that must give to the patient a measure of his danger and a measure of the reasonable hope he may cherish.

SUGGESTIONS TO OPHTHALMOLOGISTS CONCERNING SOME OF THE UNSOLVED PROBLEMS AWAITING DEFINITE SOLUTION

I am impressed with the fact that the time is ripe for a renaissance of careful investigation into the anatomic and physiologic phases of ophthalmology. Never before in the history of the art have there been such a large number of enthusiastic men devoting their lives to the practice of ophthalmology, and yet it is possible that the overwhelming proportion of these men are directing their efforts toward the immediately practical and financial aspects of the work. The profession is not crowded with the pathfinders who would measure up to the standards of Helmholtz, Liebreich, Donders, Knapp, Landolt, Javal, Tscherning, Fuchs, Noyes, Bowman, Critchett, Agnew and a host of other brilliant men of past generations, as well as the illustrious line of scientific men now receding from the field of active labor.

There are opportunities today for making careful investigations that have never been equaled in any previous era, and the most beneficent practical results will follow from a still more accurate knowledge of the anatomic and physiologic facts still to be developed.

At this time I do not know of any subject more urgently calling for thorough investigation than the crystalline lens system. It involves practically the entire realm of intra-ocular surgery, because almost all intra-ocular surgery hinges on the questions of lenticular opacities and intra-ocular tension, the first comprising all the aspects of cataract, and the second the important subject of glaucoma. In this paper, my discussion will be concerned chiefly with the lens and its ligaments; and because of the different functions of the ligament it would seem reasonable to substitute for the generally accepted term "suspensory ligament" the more comprehensive term of "compound ligament of the lens," indicating the different functions of the different fibers composing this ligamentous structure, which is chiefly concerned in holding the lens in its position in the fossa patellaris of the vitreous, in modifying the form of the lens to accomplish its work of accommodation, and to some extent in binding together the ciliary processes.

The circumlental space across which these ligamentous fibers stretch is an important gateway for the intra-ocular fluids in the anterior segment of the globe. The permeability of these structures is vital to the maintenance of a normal intra-ocular tension and a normal nutrition of the lens, and hence involves the integrity of the globe itself.

COMPOUND LIGAMENT OF THE LENS

The illustrations clearly demonstrate the form of the ligamentous bundles and their place of insertion into the capsule of the lens, on the one hand, and the ciliary body on the other hand. It will be observed that those bundles attached to the anterior surface of the lens constitute by far the most important group, and that they pass forward from the posterior portions of the ciliary body, emerging from the depressions between the ciliary processes rather than from the apexes of the processes themselves. These bundles are narrowest at their ciliary attachment, and spread out fanlike as they approach the anterior capsule of the lens, with which they are blended almost as far forward as the pupillary area. The fibers that pass to the posterior aspect of the lens capsule and to the equatorial zone are fewer, are shorter, and have a more intimate connection with the ciliary processes themselves.

There is a certain amount of interlacing of these fibers as they pass in different directions, but in a normal condition they do not constitute in man anything approaching a membrane that would enclose a definite space, such as was formerly called the canal of Petit, a term employed to designate a supposed triangular space bounded by the lens on the inner side, by the anterior ligamentous structures in front, and by the posterior ligamentous structures behind. In disease conditions these bundles of the compound ligament may be so closely pressed together as to form a barrier to the passage of fluid from the posterior to the anterior segment of the globe, in this way constituting in conjunction with the lens an impervious diaphragm separating the anterior chamber from the posterior chambers. In such conditions, the fluid secreted by the ciliary processes would drive forward the lens and its ligaments toward the iris and the cornea, thus reducing the depth of the anterior chamber and crowding the root of the iris into the filtration angle. This illus-

trates the significance of the ligaments of the lens in the production of certain forms of glaucoma, and raises the question as to the value of operative procedures that would serve to open up with safety this impervious diaphragm, thus enabling the aqueous to gain free access to the anterior chamber and reestablish an equal tension between the anterior and posterior segments of the globe. A microscopic examination of these ligaments will show the characteristic changes corresponding to those I have observed clinically as a result of age. In other words, in younger subjects the ligamentous fibers are seen as perfectly homogeneous, shining, translucent, faintly amber-tinted bands, while in older subjects a marked granular degeneration can be clearly distinguished which explains the increased fragility which renders them easily broken in the various intracapsular operations for cataract. Under the microscope these broken ligamentous fibers, when stained with various reagents, resemble in miniature the battlefield of Verdun at the close of the late war.

In some of the lower animals the ligaments of the lens are more or less completely blended with the vitreous, so that they do not stand out in discrete relief as in the human eye, and they leave the ciliary body definitely posterior to the ciliary processes.

THE CRYSTALLINE LENS

Some interesting observations can be made on the essential characteristics of the lens itself, and in this study I have considered not only the lenses of the lower animals but also the lenses of the human subject at various ages and in varying stages of opacification. I am presenting herewith 200 cataractous human lenses which I have tried to study with unusual care. They have all been removed in the unbroken capsule from the eyes of private patients who gave me every cooperation and facility in securing complete histories and accurate measures of diagnosis. They constitute a part of my regular cataract work, but include only the lenses recently removed within the capsule. All the patients have been subjected to careful systemic investigation with especial reference to the cardiovascular system. Roentgenograms have often been taken of the nasal accessory sinuses and the teeth. The direct examinations of the eyes have been made with the ophthalmoscope, retinoscope, ophthalmometer, Gullstrand's slit lamp and microscope, tonometer, perimeter, and the usual subjective tests for visual acuity and errors in refraction. The operative procedures and the subsequent course of the cases, with their treatment, have been fully recorded, and the visual tests have been made at intervals after the patients were discharged. I have been trying to analyze the records, in order to arrive at some conclusions that would be of value. I must admit, however, that my work has just begun, and many important problems will require the united and protracted efforts of many hands and many minds. Indeed, it would be in keeping with the spirit of humility born of conscious imperfections if I should forebear to give any of my impressions, but on the contrary frankly confess that my labors have been an inquiry rather than a conquest.

It will be observed that the lenses presented vary within wide limits in size, in color, in form, in texture and in the degree of opacity. Some of them were old, dense, shrunken lenses; others presented varying grades of a morgagnian type. Some were intumescent and contained large areas of transparent cortex, and were of different ages from the third to the ninth decade of life.

In examining the fresh lenses of young animals, it is evident that they possess, while within the capsule, the highest degree of elasticity, but when the capsule is removed the lens substance exhibits quite a different characteristic. This feature can be more properly termed plasticity rather than elasticity. With the capsule removed the lens can be molded into any shape, and its disposition is to continue in this shape rather than to return to the original form. The essential feature of elasticity of a solid body is its tendency to recover its shape or volume when distorted. A fluid is distinguished from a solid by the absence of permanent resistance to forces tending to produce a change of shape; that is to say, the sheer modulus of a fluid is zero. I have already observed, also, in making capsulotomy operations for cataract, that the lens substance as delivered in fragments has the characteristics of

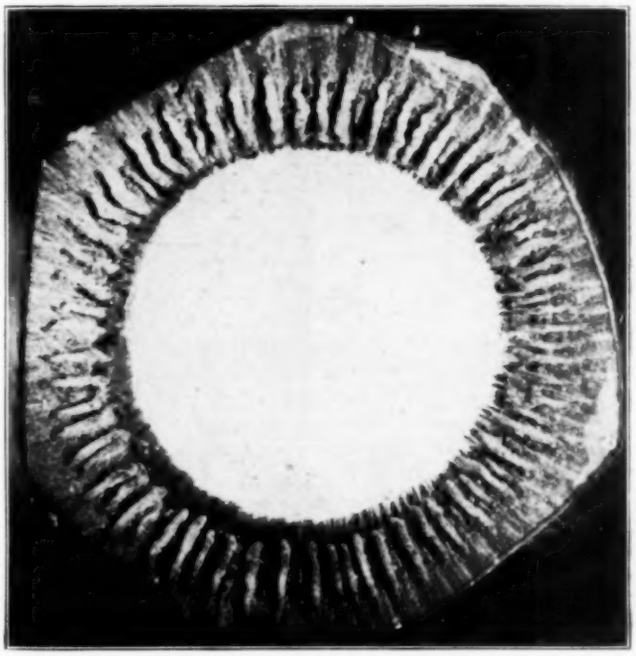

Fig. 2.—Ciliary processes in bold relief, and origin of the zonula fibers in the depressions between the ciliary processes; also the fan-shaped character of the bundles.

glue, tending to adhere to adjacent structures and to maintain with relatively little resilience the form communicated to it by external pressure. The lens capsule itself when stripped from the lens exhibits a diminished degree of elasticity, but when the lens is contained in the unbroken capsule this combination fulfils the characteristics of elasticity in a remarkable degree.

When the behavior of human lenses removed within the capsule for incomplete cataract is observed, a striking fact is that these lenses become molded so as to facilitate their passage through the corneal incision during their expression and tend to remain in this altered shape after removal from the eye, except in those cases in which the capsule is more or less completely filled with the lens solids and lens fluid, so that the tension of the capsule is maintained, in which condition the ovoid form of the entire lens is beautifully preserved.

It is frequently observed that when the fluid contents of the capsule have been partially or completely absorbed, the capsule will become definitely wrinkled,

and hence fails to display any marked elastic properties. In morgagnian cataract, partial or complete, the chief elasticity depends on the fact that the capsule is rendered more or less tense by the fluid contained in it.

The vitreous is likewise an important part of the crystalline lens system, and its physical character has a very important bearing on the operative procedure that would be indicated. The appearance and the position of the lens are useful diagnostic factors in estimating the state of the vitreous; and in conditions of degenerated vitreous with fluid consistency with a deep anterior chamber and with a shrunken lens, expression methods of delivering such lenses are fraught with unusual difficulties, because of the fact that there is no longer a resilient vitreous to serve as an effective support in sliding the lens forward through the corneal incision. A capsulotomy in such cases will not yield the desired result, but a fine lens hook introduced behind the lens will extract it safely and without difficulty. In this connection, an important study would be the influence of a fluid vitreous on the function of accommodation. In intumescent lenses with a normal vitreous and tense suspensory ligaments, the delivery is most readily accomplished. In morgagnian cataract the favorable action of tilting the lens to facilitate its extraction is nullified by its extreme compressibility and the absence of the characteristics of a solid. Under such circumstances, the capsule of the lens will usually be found tough and resistant, while the ligaments of the lens have usually undergone granular degeneration, and consequently are exceedingly fragile. In this form of cataract it is easier to rupture the inferior fibers of the zonule, thus causing a tumbling of the lens, so that its lower margin is delivered first through the corneal incision.

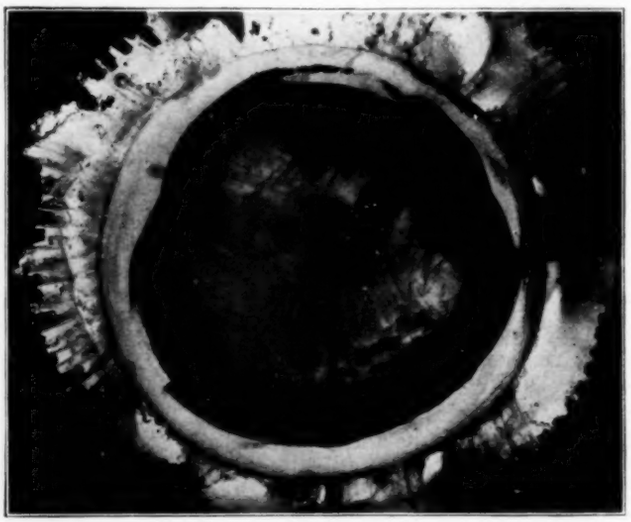

Fig. 3.—Eye of an ox, showing how the ligaments of the lens are blended with the vitreous anteriorly and originate definitely posterior to the ciliary processes. Iris and ciliary processes completely removed.

My observation has led me to the conclusion that the zonula can be successfully ruptured without rupture of the capsule or the anterior hyaloid membrane, and the lens thus extracted in its entirety with considerable certainty in practically all patients after the age of 50. The zonula is usually so tough in the fourth decade of life that this procedure is possible of accomplishment, but with considerable difficulty, while in the third decade of life it is almost impossible, and for the earlier years, absolutely impossible. Therefore, it must be concluded that this beneficent procedure is applicable with relative certainty after the age of 45, and that prior to this age a capsulotomy operation, together with a partial extraction, will offer the best means of securing vision. After the capsulotomy operation, absorption of the remaining lens substance continues for an indefinite period after the healing of the corneal wound has been completed; and if the vision remains impaired by opaque capsule to a very marked degree, a discission of this membranous obstruction will probably secure useful vision.

My experience has led me to look with some apprehension on undertaking to remove old, traumatic, cataractous lenses, because of the fact that I cannot measure how much inflammatory reaction had taken place at the time of the injury, and consequently cannot foretell so well the liability toward a recurrence of the inflammatory processes when the lens is removed. Other things being equal, the very small lenses are naturally very difficult to remove, except by traction with a lens hook or forceps. A word of caution must be given to patients with very ripe lenses and fragile zonules, because the dislocation of such lenses can easily precipitate a violent attack of acute glaucoma.

It is very necessary that the members of the general profession should recognize a few outstanding facts in relation to the prognosis. First, it is impossible to guarantee useful vision in any case, but in the overwhelming proportion of cases the chances are all in the favor of vision. Second, when everything has been done in the way of careful investigation and the most painstaking procedure, the final result may be nullified by the occasional occurrence of expulsive hemorrhages spontaneously developing from the choroid. So far it has not been possible to foretell the probability of this dire disaster, as it hinges on the fragility of the blood vessel walls in the uveal tract; and, while such an occurrence is extremely rare, it must in every instance be taken into consideration. Third, with reference to infection, ophthalmologists can now confidently expect practically to eliminate the danger of exogenous infection. But there are other cases of endogenous infection that may develop weeks or months or years after a successful extraction, and these endogenous infections are so elusive in their character that they may baffle the most painstaking systemic investigations. Fourth, as it stands today, I believe that patients can be told that an operation for cataract may be successfully performed at any time when the opacity of the lens has reached such a stage as to prevent the patient from following his usual occupation.

MECHANISM OF ACCOMMODATION

An interesting and extended discussion of the question of the mechanism of accommodation has been presented by Dr. Luedde[1] of St. Louis. His paper considers especially the views advanced by Thomas Young, Cramer, Donders, Mueller, Helmholtz, Hensen, Voelckers, Schoen, Tscherning, Beer, Grossman, Hess, Heine, von Pflugk, and Thomson Henderson. This recent paper so clearly sets forth the results of these various scientific researches that I need only to commend his essay to careful consideration, and I will content myself with a brief reference to the views expressed by Helmholtz, Gullstrand and Tscherning.

1. Luedde, W. H.: Am. J. Ophth. **10**: 15 (Jan.) 1927.

In his treatise on physiologic optics, Helmholtz says: "There is no other subject in physiologic optics about which so many antagonistic opinions have been entertained as concerning the accommodation of the eye. . . . As to the mode by which the deformation of the lens is produced, no one has yet been able to answer this question with certainty." He lays down the following known changes that occur in different parts of the eye during the accommodation:

1. The pupil contracts in accommodation for near vision and dilates for far vision.
2. The pupillary margin of the iris and the center of the anterior surface of the lens move forward slightly in incipient accommodation for near vision.
3. The anterior surface of the crystalline lens becomes more convex in near vision, less convex for far vision.
4. The reflex in the posterior surface of the lens likewise becomes somewhat smaller in accommodation for near vision.

According to the suppositions of Cramer and Donders, the iris and the ciliary muscle produce the change of the form of the lens by increasing the pressure in the vitreous body and on the outer margin of the lens in such fashion that only the center of its anterior surface behind the pupil is free from the increased pressure. It is possible that the increase in convexity of the anterior surface of the lens which Cramer noticed first might be explained on this basis.

On the other hand, the change of the shape of the lens, as shown by the writer's measurements, cannot be explained without the aid of some other force. The lens could not become thicker in the middle as a result of the hydrostatic pressure acting on its posterior surface and edge. Such a pressure would tend to cause the equatorial plane of the lens to bulge forward and, consequently, to make its posterior surface flatter.

An assumption which would appear to avoid this difficulty is that in the passive, far seeing state of the eye the lens is stretched by the zonule attached to its edge. The folds of the zonule pass outward and backward from their insertion on the capsule of the lens, thereby forming sheaths for the ciliary processes, and are attached to the posterior extremities of these processes and to the ciliary muscle, where they finally coalesce with the hyaloid membrane, retina and choroid.

It would seem that the changes in form of the lens could be explained on this basis. Besides, it is relatively easy to change the form of the lens in dead eyes by cutting the zonule.

Gullstrand, commenting on the method of accommodation, says:

There have been plenty of researches on these subjects, but, so far as the forward displacement of the anterior role of the lens and the change of curvature of the anterior surface are concerned, the results can be considered as only partially reliable.

Hitherto, nothing has been definitely known concerning a change of position of the posterior surface of the lens during accommodation.

Taking into account the above sources of error, the only definite conclusion that can be drawn from this investigation is that as yet there is no proof of a change of position of the posterior surface of the lens in accommodation, and that the curvature of the posterior surface of the lens increases in accommodation, though to a very slight extent.

Next to the change of curvature of the surface of the lens and the increase of thickness of the lens, Helmholtz attached most importance to the contraction of the pupil accompanying accommodation.

The edge of the lens has been observed to become broader in the iridectomised eye during accommodation and after the administration of drops of eserine, but no definite conclusions can be drawn from this fact. Up to the present time, nothing positive is known as to a decrease in the equatorial diameter of the normal lens during accommodation. . . . Moreover, the relaxation of the zonule on contraction of the ciliary muscle is definitely established.

Very recently Hess published new results of comprehensive studies of the mechanism of accommodation. These have shown, in the first place, that accommodation in reptiles and birds takes place in an essentially different way; for the peripheral portions of the anterior surface of the lens are flattened by the pressure of the intrinsic musculature on the part of that surface in front of the equator, whereas the portions around the anterior pole become more highly curved, so that in the enucleated eye an accommodative increase of pressure takes place.

At last Hess succeeded also in fixating the act of accommodation in the human eye, with two patients just before death, by using eserine in one eye and atropine in the other. In one case, the eyes were enucleated ninety minutes after death and hardened for eighteen hours in formalin. In the other case, they were enucleated twelve hours after death and studied fresh. After sectioning in the equatorial plane, it was shown, by observation and measurements from the side of the vitreous humor, that both the diameter of the lens and the diameter of the ring formed by the summits of the ciliary processes were smaller, and the notching of the edge of the lens less noticeable, in the eye treated with eserine than in that treated with atropine.

What change of form the anterior surface of the lens will undergo on relaxation of the anterior fibers of the zonule, no one can say *a priori*, except that it is certain that the curvature of the central portions must increase. But whether the entire form tends then to become more spherical or hyperbolical defies conjecture at the present time. . . . Hence, it is indeed quite possible that the peripheral portions of the anterior surface do become flatter in accommodation.

In 1894, while a student in Paris, I had the pleasure of meeting Tscherning in the laboratory of Javal in the Sorbonne. At that time he had just completed his first publication in French of his new theory of accommodation, and at his request I[2] translated into English a brief summary of his conclusions, in which I said:

I have been told by Dr. Javal and others that Tscherning's theory of accommodation has not yet been published in the English language, inasmuch as it has just appeared for the first time in the *Archives de physiologie*, published in Paris. I therefore thought it might be of interest to the medical profession in America. I shall not undertake to give a complete exposition of this theory, but only a brief résumé of its most important features. I will say, however, that the conclusions to which Dr. Tscherning has arrived have been the outgrowth of a vast deal of very careful study in the laboratory of Javal in the Sorbonne, and from my limited personal acquaintance with him I would judge that his inquiries have been conducted in the proper spirit of scientific investigation. His numerous experiments on the lower animals and his accurate observations on the human eye by the aid of the aberroscope and ophthalmophakometer (specially devised by him) have furnished him with the data upon which he has founded his new theory of accommodation in opposition to the well known theory of Helmholtz which has existed so long. According to the latter, the increased refractive power of the eye during accommodation depends upon a relaxation of the suspensory ligament, which allows the lens to assume a more spherical form, and this relaxation of the suspensory ligament is brought about by the contraction of the ciliary muscle. Now Tscherning's view is quite different from this. He holds that one action of the ciliary muscle is to render more tense the suspensory ligament, thus giving to the lens by an active and not by a passive process a form which is responsible for the augmentation of its refractive power. Tscherning's theory not only seems to explain the mechanism of refraction in the human eye but also is applicable to the various modifications of refraction observed in the lower animals. For example, in the case of fishes the crystalline lens is perfectly spherical in a state of repose, and hence could not become more spherical during accommodation, which would be required by the theory of Helmholtz if his theory is universal.

Tscherning's conclusions may be thus summarized:

1. During accommodation, the summit of the anterior surface of the lens remains almost stationary.

2. McReynolds, J. O.: Tscherning's New Theory of Accommodation, J. A. M. A. **22**: 396 (March 17) 1894.

2. The anterior surface of the lens during repose resembles the surface of a sphere, but during accommodation it approaches that of an hyperboloid of revolution.

3. During accommodation, the peripheral parts of the anterior surface of the lens are flattened, and the central parts become more convex.

4. During accommodation, the refractive power of the anterior surface increases throughout, but especially toward the middle.

5. The spherical aberration diminishes during accommodation on account of the flattening of the peripheral portions.

6. The central part of the lens increases in thickness on account of the flattened peripheral portions.

7. The rate of curvature of the posterior surface of the lens increases a little at the center.

8. The lens recedes a little, at least in certain cases.

9. The pupil contracts. The contraction commences a little after the change in the lens. During this contraction even the most peripheral parts of the iris take on a centripetal movement which does not occur after a simple incidence of light.

10. The plane of the iris changes. The central parts and the peripheral parts remain in the same plane, but the intermediate parts undergo a slight recession.

11. The ciliary processes advance slightly toward the axis of the eye.

12. The choroid is drawn forward.

13. The tension in the anterior chamber is diminished.

Without attempting to decide as to the value of these observations, I simply present them as being, in my opinion, worthy of consideration.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. FOX, PARKER, DUNPHY, O'BRIEN AND MCREYNOLDS

DR. W. H. LUEDDE, St. Louis: During recent years I have come to look askance at the diagnosis of "senile" cataract. Careful investigation of all possible factors has repeatedly supplied a cause for lenticular opacity quite independent of the age of the patient, and the elimination of such causes seems to explain why some incipient so-called senile cataracts remain stationary and do not obscure vision sufficiently to require surgical intervention.

What he has stated concerning the ages at which this operation is indicated should be carefully noted. This special experience is required, particularly to enable the operator to select wisely the cases in which intracapsular extraction may be attempted and to know how much force may be used in dislodging the lens without the risk of too extensive a loss of vitreous. Those of us who have not enjoyed these advantages may be helped in the performance of the intracapsular operation by a simple but well thought out device developed in the last two months by Dr. F. O. Schwartz of St. Louis. With the aid of his special lens expressor, it is apparently possible to deliver the lens in capsule even after an anterior capsulotomy. The lens is not "tumbled" but, remaining encapsulated, moves directly through the incision at the limbus with the ease and simplicity that has been associated with the delivery of the nucleus and cortex after capsulotomy.

Dr. McReynolds' demonstration of the separate bundles of the zonula is especially interesting and illuminating.

Permit me to commend the special care and accuracy with which the author discusses the so-called elasticity of the lens. It is time to emphasize and applaud such frankness. The softer lens structure is not elastic but plastic. Why? Apparently for the simple reason that this material is to be changed in shape by external impressions rather than by inherent elasticity, as assumed by Helmholz.

Dr. McReynolds further confirms what others have noted, that the capsule alone is rather feebly, if at all, to be considered an elastic tissue. But filling a capsule with such plastic material produces a body that shows such a striking resemblance to elastic behavior that we have been more or less deceived by it concerning the true mechanism of accommodation.

All recent measurements, as well as those of Tscherning and the much earlier tests of Thomas Young, have shown that the accommodated lens is relatively flattened at the equator. Von Pflug's series of frozen sections demonstrated that the rest form of the lens is spherical but that the greater the accommodative effort, the more the lens departs from the simple spherical outline on both anterior and posterior surfaces. It can be demonstrated that the vitreous is compressed against the lens under the use of myotics. The effect of such pressure must be a change in the form of the plastic material of the lens.

DR. E. C. ELLETT, Memphis, Tenn.: For the purpose of comparison I have collected figures of a number of my own cases; namely, 100 combined capsulotomy extractions, 100 combined intracapsular extractions (Knapp-Torok) and 100 simple extractions, fifty with capsulotomy and fifty in the capsule. The tables are made exactly as Dr. Parker's tables are made for the purposes of easier comparison. The cases are consecutive and not selected, except that only those cases were chosen in which the final result could be determined. As nearly all my cases were private cases, in which refraction was probably at a later average date than Dr. Parker's, and possibly more carefully, it gives me an apparent advantage in visual results, but I am very sure that the advantage is only apparent. Thus, in the percentage of cases with ultimate vision of 20/40 or better, his tables show 69 per cent; mine show 77 per cent. The best result in this respect in my table is in the simple intracapsular cases, 82 per cent, while his best results were in the combined operations, 75.5 per cent. With regard to complications, I had a total of 7.66 per cent of vitreous loss against his 4 per cent; in both series the highest percentage was in the Knapp-Torok cases. I was fortunate in having only one infection in the 300 cases, against his two, a negligible difference and not to be attributed to the type of operation. Iris prolapse occurred in 4.66 per cent of my cases, and in 3 per cent of his, mostly in simple extractions. Secondary cataract was, of course, least often seen in the intracapsular extractions. My series shows more cases of secondary cataract in the combined cases, while his shows more in the simple extractions. The astigmatism averaged almost exactly the same in the two series in the combined and Knapp-Torok cases, but my simples showed twice as high an average, because of the unfortunate occurrence of from 8 to 12 diopters of astigmatism in a few cases with iris or vitreous prolapse. Comparing table 5 in each series, my own figures are a little better, that is of cases of 6/15 vision, or better, but the reason for this, I am sure, is that my cases were under observation longer, and it is well known what a difference a few weeks makes in this respect. I was fortunate in not having any case of spontaneous hemorrhage or delirium in any of the cases included in this series. With regard to Dr. Parker's conclusions, they agree with what most of us think who are not interested in the exploitation of a particular or new or individual method of operating; namely, that the safest method of cataract removal for one to use in one's early years in ophthalmic surgery is the combined method, with capsulotomy and expression of the lens, leaving the other and usually more difficult methods till experience, and the increased skill and better judgment that come from experience alone, indicate when they may be used to advantage.

DR. ARNOLD KNAPP, New York: Loss of vitreous is a serious complication, not so much from the loss of a part of this tissue but because it prevents accurate coaptation of the wound and causes imperfect healing, iris entanglements and iridocyclitis, with varying degrees of infection or glaucoma. The vitreous opacities which Dr. Dunphy mentions as a reason of the poor sight obtained are really the expression of a generalized inflammation, an iridocyclitis with frequent alteration of the ocular tension. It is very important whether the vitreous is lost before or after the extraction of the cataractous lens. When the vitreous is lost before extraction, the loop has to be inserted into the vitreous body to assist in extracting the lens. This usually results in a certain amount of cyclitis, with the formation of vitreous opacities and the other sequelae mentioned. The loss of vitreous after the extraction of the cataract is a much less serious complication,

as it does not entail introducing instruments into the vitreous, and the resulting complications are few and the vision is not necessarily affected.

There can be no question about the seriousness of vitreous loss; it should never be taken lightly, and any precaution against its occurrence should enlist our most careful attention. The greatest fault, and the most frequent cause of vitreous loss, is an imperfect section, generally one that is too small. Aside from this, much depends on the proper execution of modern local anesthesia, to which Dr. Dunphy has drawn particular attention. Nevertheless, even if the local measures are perfectly carried out, in a small proportion of cases the patient's behavior may make a general anesthetic necessary. Dr. McReynolds has shown us a most valuable method for the detailed study of what he calls the compound ligament of the lens. The bearing this has on a number of pathologic problems is enormous, and I hope that Dr. McReynolds will continue his investigations, so that we may have further information on many important questions of ocular pathology. The comparison of the value of the intracapsular operation (I mean by the intracapsular operation the operation consisting of the subluxation of the lens by blunt forceps introduced into the eye and then the extraction of the lens by external manipulation) with the combined capsulotomy operation is not so important, for both methods are necessary to the ophthalmologist. There are certain cases in which wonderful results are obtained only by the intracapsular operation. Then, again, there are many cases in which excellent results are obtained only by the combined capsulotomy operation. I think that we should be very definite in our selection of the case suited for either operative procedure; the selection of the operation should depend entirely on the character of the cataract, on the patient's age, on his behavior and on other factors. In other words, we should be guided entirely by what is best for the patient's ultimate vision.

DR. ALBERT E. BULSON, JR., Fort Wayne, Ind.: For the cornea and conjunctiva, instillation of solutions of cocaine or butyn are very satisfactory, especially when combined with a minimum amount of epinephrine, which augments the anesthetic action. For anesthesia of any of the deeper structures of the eye, something more than instillation is required, and here infiltration or peripheral nerve block serves an admirable purpose. I cannot share Dr. O'Brien's optimism concerning the safety of local anesthesia in any and all cases. Of far more importance is the sensitiveness of some patients to epinephrine, and I refer particularly to patients suffering from hyperthroidism and patients suffering from cardiac insufficiency.

A precaution to be observed, therefore, is the dosage in any case, the total amount of epinephrine always being on the side of safety, and, in thyroid cases, a minimum amount employed or the drug omitted altogether. Furthermore, it is my observation that hyperthyroid cases, in which we frequently are called to perform ophthalmic operations, are more apt to show toxic disturbance from any local anesthetic as well as from epinephrine. It is an established fact that even small doses of epinephrine have produced such manifestations as blanching of the face, tremor and increased heart action, and in patients suffering from exophthalmic goiter I have noticed similar symptoms, and, more particularly, respiratory embarrassment, from local anesthetics alone, even in doses that ordinarily are considered perfectly safe. Therefore, it would seem to me that in a certain class of cases, namely, old persons or those suffering from hyperthyroidism or any form of heart disease, particularly cardiac insufficiency, not only should the minimum amount of the local anesthetic be employed, but there should be great hesitancy in employing epinephrine without first testing out the susceptibility of the patient to that drug. In my experience, the subconjunctival injection of local anesthetics, in very small amounts, is insufficient to disturb the anatomic relation markedly, and it very materially augments anesthesia of the eyeball. Consequently, I do not confine it to cataract extraction in which, as the author says, it is decidedly advantageous. For subconjunctival injections I prefer cocaine on account of the limited quantity necessary to obtain the desired result, though for extensive infiltration or nerve block the procaine solution is preferable. Nerve blocking is ideal for producing anesthesia in ophthalmic surgery, but care must be observed to employ a trustworthy technic or results will be disappointing. I cannot endorse the author's recommendation that ¼ grain of morphine and 1/300 grain of scopolamine may be given by hypodermic injection one hour prior to an ophthalmic operation, except in cases in which the eyeball is not to be opened, because in some cases vomiting is produced by the opiate.

DR. E. E. HOLT, JR., Portland, Maine: The need for variety in the surgical treatment of congenital cataract depends largely on the recognition of the value of the lenses in situ to develop and maintain a greater perfection in vision. This is evident in the instance of brothers with equal intelligence. Iridectomies were performed on one and needlings on the other, and although the former sees less, his vision is the more natural. Tests show stereoscopic vision only in the iridectomized eyes. Again, frequently after the removal of a cataract in an adult the eye not operated on with poorer vision is preferred until its visual acuity is very low. Why should eyes under such conditions with lower vision be preferred? Manifestly, because of the presence of the lens, which within its range allows a better perspective. The amount of improved visual efficiency when partially opaque congenital lenses are allowed to function is sufficient to offset a considerably better central vision in aphakic eyes. This value of the lenses has not been fully realized when so few optical iridectomies are advised and performed. If one believes in this function of the lens, it is clearly his duty to do an optical iridectomy, reserving discissions and linear extractions for such cases as will not permit an iridectomy. Even if in doubt as to the clearness of the lens, especially in the very young, one should do a nasal iridectomy so as to give these youngsters the best visual advantages. Any later surgery would be facilitated by such procedure. In performing an iridectomy, too much emphasis cannot be given to the importance of the correctness of its location and its size, for complete success in a large measure depends on the care given to these details. If a needling is done, one should try to reduce the number of operations so as to avoid their dangerous reactions. My best results are obtained when a free opening is made in the capsule, and if the resulting swelling of the lens warrants, a linear extraction is performed. If an empty capsule remains, as described by Dr. Fox, I can commend his methods of operation, especially the second method in which the capsule in toto is removed. Further study of these congenital cataract lenses, especially with the slit lamp, will broaden our conceptions and thus enable a larger number of such lenses to be retained.

DR. DANIEL M. VELEZ, Mexico City: For a long time in Mexico we followed the old surgery for eyes, getting our education from Europe. But now we consider that we should look to the United States rather than to Europe, because we are your neighbors and we see in Mexico that the general improvement of learning in ophthalmology in the United States is great and so much farther advanced than it is in Europe that we must take advantage of it. Our regard for the medical profession of the United States has so increased that we like to receive at all times all the publications that you have. Especially do we value THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. All physicians in Mexico read THE JOURNAL, which is so interesting and so informative. We appreciate very much the courtesy of the physicians in the United States. Some of us come every year to attend your very interesting and important conventions.

DR. F. PARK LEWIS, Buffalo: Dr. McReynolds' paper and the sections with which it is illustrated touch on one of the most important subjects in ophthalmology. Our knowledge of the management of perhaps three fourths of the troubles affecting the eye depends on a fuller knowledge of the anatomy and the functions of the ciliary region. In order that the complicated structure of the human eye may be more fully understood, I have been studying some of the simpler forms found in the primitive types of fish. The tarpon from our Southern waters had its prototype in the Eocene period and a closely allied fossil is found in the Carboniferous limestone. In all fish the lens is globular. In the swordfish, the tarpon and the pollack, an extension of the lens tissue projects from

each side of the lens itself. To these are attached fibrous bands allowing the lens to swing in the vitreous. There is no ciliary muscle. This is suggestive of a possible movement of the whole lens in the higher forms of life. Prolapse of the iris following the extraction of cataract occurs frequently as a result of undue pressure from the bandage. To avoid this, I have used what might be termed a "lid splint" in preference to the conventional pad and bandage. That is to say, I apply an oval patch of isinglass moistened with mercuric chloride solution over the upper and lower lids, so that they are held firmly in position. In two minutes the plaster is stiff and the lids cannot move. No further bandage is necessary. With the pressure bandage the movement of the eye sometimes causes the pad applied to it to press unevenly, and it is apt to cause intrusion or protrusion of the iris through the section. With the splint there is absolute immobility of the smooth protecting lids with much greater safety.

DR. EDMOND E. BLAAUW, Buffalo: I have been much disturbed by the views on accommodation expressed by Dr. McReynolds and Dr. Luedde. This discussion should include a consideration of the work of Gullstrand, for which he received the Nobel prize. Dr. Luedde stopped short with Tscherning. Dr. McReynolds mentions Gullstrand, and even quotes him, but the impression that I received from reading this quotation is entirely different from the impression I had after reading the original. This is now possible to all, thanks to the translation of Helmholtz' Physiologic Optics. A translation of Gullstrand's public lecture in German has appeared in the *Archiv für Augenheilkunde* **72,** 1912. In this, as well as in the "Addendum," Hess' observations of the "slottering of the lens" during maximal accommodation—a fact which Tscherning and his followers try to belittle—is referred to as being a very important scientific discovery and to be explained only by accepting Helmholtz' theory, according to which the ligamentum suspensorium lentis becomes relaxed during accommodation. Besides, Gullstrand found by mathematical calculation that an internal rearrangement takes place during accommodation, which also can be deduced from the anatomy of the lens. The bringing into the discussion of comparative anatomy obscures the problem. The intrinsic difficulties limit the number of men capable of working in this field with success.

DR. RICHARD J. TIVNEN, Chicago: In every cataract operation the outstanding problem confronting the surgeon is what type of cataract operation he shall choose which will subject the patient to the minimum operative hazard and will insure the largest yield of useful vision. The question then naturally arises, What is the safest cataract operation? Experience and study point unmistakably to the conclusion that the answer to neither of these questions can be arrived at by the method of generalization, but that a careful selection or grouping of cases, the so-called individualization of the patient, is required. In conformity with this experience, we find ourselves, as surgeons, placing more emphasis on the equation of the patient and rather less on the cataract. It seems almost a truism to state that one patient may safely be subjected to a type of cataract operation which is wholly unsafe for another patient. How satisfactory it would be if the surgeon could say to one patient, "Your ocular and physical equipment is such that you may safely undergo the Knapp-Torok operation," and to another, "You cannot safely undergo the simple cataract extraction." This ideal, perhaps, at the present time is unattainable in every instance, but its approximation is certainly the goal we hope to reach. I have a conviction that our greatest field of opportunity in reaching this ideal lies in carrying out the routine method of carefully selecting or grouping our cases, the so-called individualization of the patient, based on an intensive study of the indications and contraindications applicable to the several operative procedures. This feature is the one which has impressed me in Dr. Parker's painstaking study and admirable report of his 300 cases.

DR. H. W. WOODRUFF, Joliet, Ill.: The ordinary accepted causes for vitreous loss are well understood. Manifestly, then, a thoroughly worked out plan should be a part of every cataract operation. When pain is the cause, complete anesthesia is indicated. This should insure one against this accident if properly carried out. In cases of excessive pressure on the globe, pressure with either the fixation forceps or the speculum should be avoided. When movement of the eyeball is a cause, more consideration of the patient's temperamental complex and better coordination of the surgeon's operating organization will, in the majority of instances, result in the patient's going through the operation with undisturbed confidence, without excitement, and with perfect composure.

DR. W. B. LANCASTER, Boston: Vitreous does not come out of the eye of itself. It won't run out. Liquid vitreous might, but ordinary vitreous loss is not due to anything about the vitreous itself which makes it come out. It is either pushed out by the surgeon or expressed by the patient. The reason the patient expresses the vitreous is usually because he feels something. It may not be pain; it may be just a little sensation that surprises him, and he squeezes. This squeezing involves a good many muscles. It is not limited to the orbicularis by any means. If one were to cut off both lids completely and then tell the patient to squeeze, he could still squeeze out the vitreous because of the contraction of the extra-ocular muscles, and those are the muscles that we need to look after. The remedy is simple. If the patient squeezes because he feels something, good anesthesia should be secured. The results shown by Dr. Dunphy in his statistics seem to indicate very clearly that good anesthesia is a preventive of prolapse of the vitreous. Sometimes a patient squeezes without the stimulus of any sensation caused by the operator. Such a patient is usually nervous, mentally disturbed, and keyed up, with reflexes not fully under control. In such a case what I call the "mental anesthesia" comes in, in the form of sedatives. It is highly important, I think, to combine with the local anesthesia suitable sedatives to help control the nervous state and the reflex excitability of the patient.

DR. OSCAR WILKINSON, Washington, D. C.: I have for a number of years used both the nerve block and infiltration methods of anesthesia in eye surgery, and feel that if these methods are thoroughly carried out there is seldom occasion for general anesthesia, except in children. In inflammatory conditions of the eye, I have found that injections of procaine hydrochloride with epinephrine will give a better anesthesia and be less toxic than cocaine. The injection over the condyloid process of the mandible to infiltrate the fibers of the seventh nerve in order to prevent squeezing in any operation in which the globe is opened, as for cataract, is very efficacious. The only objection one could have to this method is the remote possibility of getting into the glenoid fossa. We usually get such a complete paralysis of the lids that it is advisable to use wet dressings or a temporary suture to keep them closed. I have recently used that on several occasions, and I have been really surprised to find what complete paralysis of the lid is secured. In fact, after the operation the patient is entirely unable to close the eye, and a wet dressing or isinglass is necessary to secure the closure of the lid. I have not found it necessary, and on the contrary have found it objectionable to use injections in squint surgery. They invariabl distort the normal position of the tissues and make delicate surgery more difficult to do. If one will massage, with a cotton applicator which has been dipped into a 10 per cent solution of cocaine, over the region of the muscle and use the proper delicacy—that is, avoid pulling on the muscles themselves—one can secure a satisfactory anesthesia without injections. I invariably give adults a hypodermic injection of morphine and scopolamine, or morphine and atropine, one-half hour before they are brought to the operating room. This quiets them and acts as a synergist to the local anesthesia. For a number of years I have used infiltration anesthesia in chalazion operations.

DR. W. H. WILDER, Chicago: In almost all the statistics of cataract operations, it is usually stated or implied that the most valuable criterion of the relative merit of the operative procedure is the degree of vision that is secured. Such a criterion alone may be very unreliable and even misleading, because every one who has ever done much cataract work knows that he has frequently obtained 20/20 or better vision

with an operation which was poorly designed and poorly executed. On the other hand, in many cases the operator fails to get good vision through no fault of the method or execution of the operation, but because of conditions that he cannot control. Such conditions as congenital amblyopia, posterior choroiditis and vitreous opacities are a few examples of this kind. I submit that if we could have in our statistics of operations for cataract a statement of something else that would act as a criterion of the relative value of different operative procedures it would be a distinct gain. Therefore, I make the suggestion that in statistics on operations we have some record of the degree of the reaction that has been produced by the trauma of the operation. Any operation, however skilfully performed, is a traumatism to the eye, and if we do not in some way estimate the amount of the traumatism, we cannot get a fair estimate of the value of the operative procedure per se. It should always be asked whether one method of operation subjects the eye to greater traumatism and hence to greater danger than does another method, and the answer to such a question should be found in a series of statistics comparing the relative merits of operations such as those for cataract and glaucoma. While we desire to know what the ultimate optical result has been, that alone is not sufficient and may be misleading; the amount of traumatism to the eye should also be presented in terms of how much reaction, such as iridocyclitis; how long the patient remained under treatment in hospital, and how much after treatment was necessary. Such observations would be useful guides in determining the relative value of different methods of procedure in cataract extraction.

DR. R. H. T. MANN, Texarkana, Ark.: It is very gratifying, indeed, to those of us living in smaller medical centers, who have held to the combined extraction throughout these years when so much has been said about other methods of extraction, to know that the combined method still gives the best results in the hands of more skilled men.

DR. FREDERICK O. SCHWARTZ, St. Louis: At some time or other we have all thought of a means to simplify cataract operations. My ideas culminated recently in a new lens expression hook. Designed originally to remove the entire lenticular contents at one sweep, following capsulotomy, it has done the unexpected and brought out the lens in its capsule, in spite of the capsulotomy. In the first five of my series of cases, a capsulotomy was done in the regular manner, following the corneal section and iridectomy, and after application of my hook, the lens came out in its capsule. In the cases following, and without any change in the technic of applying the hook, I succeeded both times, without increased effort, in doing a neat intracapsular expression. There is no doubt that the lenses were expressed with their capsules intact. In my last case the capsule ruptured and some vitreous was lost. With my method for intracapsular extraction of the lens, the outstanding results are: (1) a minimum degree of trauma; (2) slight local reaction; (3) clear pupil, and (4) a low percentage of vitreous loss. It need not surprise us that a relatively small amount of pressure properly applied and uniformly distributed will bring about rupture of the zonula. Among the early methods proposed for maturing a cataract was that of rubbing the cornea with the angle of a strabismus hook following iridectomy, proposed by Foerster of Breslau (1881). He warned especially against using pressure that might rupture the zonula. Hasket Derby, referring to Foerster, quotes the experience of Dr. Charles Bull in emphasizing this precaution against too much pressure. It is evident that the zonula may easily be ruptured in certain cases.

DR. LOUIE V. STEGMAN, Battle Creek, Mich.: It has seemed to me that the percentage figures of complications in cataract extraction, in cases in which the intracapsular method is practiced, might be interesting in comparison with the figures given by Dr. Dunphy. Therefore, I have prepared a report, accurate as far as the records are concerned, from the work done in Shikarpur, India, in 1925.

There were 1,248 cataract extractions in thirty-five operating days. Nineteen lenses were lost in the vitreous; eighty-six cases had not been dressed after operation, and no report on these results was given to us later. Deducting the operation on juvenile cataracts and the figures for lenses lost and uninspected cases from the total, there remain 1,109 cases, on most of which we have reports. These were divided as follows as to type of operation: intracapsular, 955; combined, 154. There was loss of vitreous in 103 cases, or in 9.28 per cent. Sixty-seven of the patients with vitreous loss were dismissed with "good" written in the "results" column; twenty-five were dismissed without remarks as to their final condition, and only eleven were infected or in the hospital for further treatment. Good results meant that the wound was healed and looked clean, and that the patient could count fingers at a distance of 2 feet and get around to take care of himself.

DR. GEORGE HUSTON BELL, New York: There is no question but that Dr. Fox is on the right track when he does a preliminary iridectomy in congenital cataracts. I can see where Fox's operation would be of advantage while the children are young, as they would be relieved of wearing thick glasses, which is a great handicap while at school; but when they get older and want more vision, it seems to me that the coloboma would then be in the wrong place for a needling operation, and that his patients would complain of intolerance to light when the lens becomes absorbed. With my operation, the upper lid covers the coloboma. If my patients complain of dazzling, Crooks' lenses are used. Some objected to an iridectomy on cosmetic grounds and because of mutilation of the eye. These objections are secondary when one is preparing young persons for the battle of life. Bernard Samuels, professor of ophthalmology in Cornell University Medical College, said at a meeting of the New York Ophthalmological Society, May 9, that in the New York Institute for the Education of the Blind they had more children blind from postoperative congenital cataracts than from ophthalmia neonatorum. He also said that statistics from all over the United States "added weight to his testimony." It may be said that there are two main reasons for this terrific loss of vision. First, lack of general preparatory measures, such as giving these patients the "acid test" for the "three T's." More attention must be paid to the general state of patients. All these children have adenoids and diseased tonsils. Some have oral sepsis and their intestinal tract is in bad shape from sugars and sweets and soft carbohydrate foods. Last, but not least, in the "house cleaning process" is the Wassermann blood test. About 30 per cent of all my cases of congenital cataracts in the last ten years have been due to heredosyphilis. The old method of going through the cornea with the round pupil is fraught with danger, and the chances for infection are greatly increased by the corneal route. Berens and I have 100 cases of juvenile cataract in which we have performed operation in the last ten years according to my method without the loss of a single eye. Whether Fox's operation is done or mine or one of your own choice, let me urge two major considerations: first, the general preparatory measures to which Fox has called attention in his paper; second, a preliminary iridectomy to be done just back of the limbus, according to the Reese method.

DR. WALTER R. PARKER, Detroit: I very much appreciate Dr. Ellett's generosity in attributing my failure to get as good visual results as he did to the fact that his patients were private patients and mine were clinic patients. The fact remains, nevertheless, that his results are better, and I promise to try to do better in my next series. In regard to Dr. Knapp's suggestion that we should do the best thing possible for the patient, I agree with him. The question is, What is the best thing for the patient? Any medical treatment or any surgical procedure is not necessarily the best because we are interested in it at the moment; it is essential that we check these new methods, and I still believe that the combined extraction with irrigation of the anterior chamber is the yardstick by which we shall know whether or not the new procedures suggested for the removal of the lens are better. It makes no difference what is suggested—it must be better than the combined method of extraction before it is better for the patient. In regard to sedatives, the great difficulty is that all of them occasionally have an unfortunate effect on the patient, sometimes producing nausea that necessitates postponment of the operation. At other times the symptoms do not develop until after the operation but in any event are

a serious complication. I have prescribed most of them at different times, but have finally given them up entirely as a preoperative measure. If the patient does not have good control, I postpone the operation. If at the second attempt the patient is still very nervous, a general anesthetic is administered. A thorough local anesthetic will diminish the number of cases requiring a general anesthetic.

OBESITY

RECENT REPORTS IN THE LITERATURE AND RESULTS OF TREATMENT *

LOUIS BAUMAN, M.D.
NEW YORK

Investigation of the following problems might yield information regarding the production of obesity:

Two men of equal weight and height receive the same food and do the same amount of work for a similar period. One gains weight rapidly, the other does not. How is this explained?

A decrease in basal metabolism has been observed in prolonged inanition or weight loss. Does a corresponding increase occur during periods of overfeeding? If so, is the increment similar in the two types of individuals mentioned?

Is the stimulation of metabolism by protein, the so-called specific dynamic action, the same in the constitutionally obese as in normal individuals?

Is work performed with less energy expenditure by the adipose than by the lean person?

Students agree that there is no inherent change in basal metabolism except in the subthyroid group.

SPECIFIC DYNAMIC ACTION OF PROTEIN IN OBESITY

In 1900, Jacquet and Svenson [1] examined the oxygen consumption and carbon dioxide elimination of three obese subjects after protein ingestion. Two showed a subnormal response. This decrease in energy expenditure spared 11 Gm. of fat each day and thus permitted an annual storage of 4 Kg.

Rolly [2] had an opportunity to study the specific dynamic action of protein in two patients before and after they became obese. One began to store fat after double orchidectomy for tuberculous orchitis, and the other after pregnancy following thyroidectomy for exophthalmic goiter. In the former, specific dynamic action after the ingestion of 1,000 Gm. of meat decreased from 58 to 19.5 per cent; in the other, from 42.7 to 17 per cent. In two other cases of obesity no definite result was obtained; hence, he concludes that lowered specific dynamic action is probably only one of several causes of obesity. He also points out that observations should be made during the development of adiposity, for the change in metabolism may disappear after deposition of fat.

TABLE 1.—*Effect of Protein Ingestion on Metabolism*

Subjects	Number	Average Weight Above or Below Normal, per Cent	Average Age	Average Protein Intake, Gm.	Average Percentage Increase Above Basal Metabolism in 2 Hrs.	4 Hrs.	6 Hrs.	8 Hrs.
Obese.....	11	+63.3	25	46.6	3.1	1.7	−1.9	1.3
Normal.....	6	.....	28	61	17.1	16.9	7.2	5.1
Thin.....	6	−25.1	28	55.5	20.2	20.5	12.5	9.4

Plaut [3] reports a large number of experiments in several publications appearing in 1924 and 1926. After basal metabolism had been estimated, 200 Gm. of meat and 50 Gm. of fat were fed and oxygen consumption was determined during the following two hour period. The increased metabolism averaged 27.6 per cent in thirty-nine normal controls; 11 per cent in thirty cases of so-called constitutional obesity, and 10.5 per cent in eighteen cases of hypophysial dystrophy. At another time, seventy-eight of eighty-eight cases of obesity showed a specific dynamic action around 10 per cent, and the same result was obtained in thirty-three patients out of forty-one examined, with genuine dystrophia adiposogenitalis. It is said that injection of an anterior pituitary preparation restored specific dynamic action to normal.

Liebesny [4] found the average increase in metabolism after 200 Gm. of roast veal to be 30 per cent in normal people. Of twenty-two "endocrine patients," the subthyroid and hyperthyroid cases exhibited a normal response to protein, while those with hypophysial dystrophy gave a low response. Of sixty-one cases of obesity, twenty-five showed a lowered response to protein. Both Plaut and Liebesny believe that lowered specific dynamic action is associated with disturbance of function of the anterior lobe of the pituitary gland.

TABLE 2.—*Metabolism Increase in Dogs*

Time After Feeding	Increase Over Basal Metabolism: Lean Dog, per Cent	Fat Dog, per Cent	Increase of Lean Over Fat Dog, per Cent
2 hours.....	11.38	6.49	75.5
3 hours.....	14.19	8.55	66.1
4 hours.....	15.10	9.59	57.5
6 hours.....	14.32	8.87	61.4

Knipping [5] confirms Plaut's results in thirty-five cases of obesity and hypophysial dystrophy, and agrees that administration of the pituitary gland preparation induces an increase in heat production after protein feeding.

Strouse and Wang,[6] Chicago investigators working with a Tissot gasometer, obtained the results presented in table 1.

Gibbons' [7] experiments on dogs are confirmatory of the trend of the results obtained in man. A greyhound was chosen as having an hereditary tendency to leanness, and a stocky mongrel (chiefly St. Bernard or mastiff) as an animal tending to adiposity. Both weighed between 29 and 30 Kg. The average increase in metabolism after feeding 200 Gm. of beef heart for twenty-five and twenty-seven tests, respectively, is shown in table 2.

The diminution of specific dynamic action of protein in obesity is not confirmed by Lauter.[8] His determinations were made on ten normal and thirteen obese

* From the Departments of Surgery and Medicine, Presbyterian Hospital and Columbia University.

1. Jacquet, A., and Svenson, N.: Zur Kenntniss des Stoffwechsels fettsuechtiger Individuen, Ztschr. f. klin. Med. **41**: 375, 1900.
2. Rolly, F.: Stoffwechsel bei Fettsucht, Deutsche. med. Wchnschr. **47**: 887, 917 (Aug. 4) 1921.
3. Plaut, R. L.: Gaswechseluntersuchungen bei Fettsucht und Hypophysiserkrankungen, Deutsches Arch. f. klin. Med. **139**: 285 (May) 1922; Gaswechseluntersuchungen bei Fettsucht, ibid. **142**: 266 (June) 1923. Plaut, R. L.; Kestner, O., and Schadow, H.: Spezifisch-dynamische Wirkung, Hypophysenvorderlappen und Fettsucht, Klin. Wchnschr. **5**: 1646, 1926.
4. Liebesny, P.: Die spezifisch-dynamische Eiweisswirkung, Biochem. Ztschr. **144**: 308, 1924.
5. Knipping, H. W.: Hypophyse und Fettsucht, Deutsche med. Wchnschr. **49**: 12 (Jan. 5) 1923.
6. Wang, C. C.; Strouse, Solomon; and Saunders, A. D.: Studies in the Metabolism of Obesity: Specific Dynamic Action of Food, Arch. Int. Med. **34**: 573 (Oct.) 1924.
7. Gibbons, R.: On the Specific Dynamic Action of Proteins in Thin and Fat Individuals (Dogs), Am. J. Physiol. **70**: 26 (Sept.) 1924.
8. Lauter, S.: Zur Genese der Fettsucht, Deutsches arch. f. klin. Med. **150**: 315 (March) 1926.

subjects after ingestion of 200 Gm. of meat. The figures for basal metabolism seem unusual, and one is inclined to accept the results with caution.

Krantz and Means [9] studied the elevation of metabolism following injection of 0.625 mg. of epinephrine. The average increase in obese subjects was 28.3 per cent and in normal controls, 26.1 per cent.

CHANGE IN BASAL METABOLISM DURING OVERFEEDING

Grafe and Graham,[10] in a well controlled experiment, observed a 40 per cent increase in basal metabolism without gain in weight in a dog fed with more than twice his minimum requirement during a fifty-nine day period. The authors believe that constant weight during overfeeding is maintained by this adjustment of metabolism.

Grafe and Koch [11] fed a high calory diet to a man for six months. A gain of 20 Kg. and an increase of 80 per cent in basal metabolism resulted. Specific dynamic action also increased from 26 to 67 per cent.

Eckstein and Grafe [12] corroborated Grafe and Graham's results. During overfeeding of a dog, basal metabolism increased to 82 per cent. This increase could be prevented by removal of the thyroid.

TABLE 3.—*Specific Dynamic Action of Proteins in Obese Individuals*

Authors	Year of Publication	Amount of Protein Fed, Gm.	Number of Patients or Animals Examined	Number of Patients or Animals Having a Decreased Specific Dynamic Action
Jacquet and Svenson..	1900	..	3	2
Rolly.....	1921	200	4	2
Plaut et al.....	1922, 1923	40	129	111
Knipping.....	1923	40	15	15
Liebesny.....	1924	40	61	25
Strouse and Wang.....	1924	46.6	11	9
Gibbons.....	1924	40	1	1

According to Lauter [8] there is no difference in the amount of energy expended by obese and normal persons during muscular activity.

COMMENT

Most of the experiments show a relatively decreased heat production in obese subjects after protein feeding. The administration of a preparation of the anterior lobe of the pituitary gland increased specific dynamic action in some, though according to Plaut and his co-workers it also has a tendency to lower basal metabolism and should therefore be combined with thyroid.

That specific dynamic action is influenced by endocrine glands, notably the thyroid and pituitary, is indicated by the work of Baumann and Hunt [13] and of Foster and Smith.[14] The former noted an absence of specific dynamic action to sugar after the removal of the thyroids in rabbits, and the latter a decrease in basal metabolism to minus 35 per cent and an absence of specific dynamic action after removal of the pituitary.

While these results are interesting and suggestive, further confirmation appears to be desirable. The varying response of normal individuals to similar quantities of protein observed by Benedict and Carpenter,[15] who used direct calorimetry, must be considered in evaluating these experiments. Varying rates of digestion and absorption of meat may be a disturbing factor.

The influence of high calory feeding on basal metabolism needs further study and confirmation.

TABLE 4.—*Increase in Basal Metabolism During Overfeeding*

Authors	Year of Publication	Increase in Basal Metabolism, per Cent	Comment
Grafe and Graham....	1911	40	Dog received 210 per cent of his minimum requirement for fifty-nine days
Grafe and Koch.....	1912	80	Man on high calory feeding for six months
Eckstein and Grafe....	1919	82	Dog received 400 per cent of basal requirement

CLINICAL DATA

Obesity is acquiring clinical importance because it has an adverse effect on longevity, and because it predisposes to diabetes, hypertension, gallstones and cardiac embarrassment. It makes the surgical patient a poorer risk and favors the development of hernia after abdominal operations. Orthopedic abnormalities of the feet are aggravated or initiated by obesity.

Its effect on the duration of life is brought out in the medical actuarial tables on mortality investigation.[16] The percentage ratio on actual to expected deaths for overweight men and women between 40 and 62 years of age, based on 744,672 policies, is as listed in table 5.

Foster [17] says that 50 per cent of the patients with hypertension are obese, and Joslin [18] finds that from 70 to 85 per cent of persons with diabetes give a history of obesity. Of the last 215 patients with cholelithiasis on whom operation was performed at the Presbyterian Hospital, 88 per cent were overweight.

For these reasons, it was thought desirable to establish an ambulatory clinic for the purpose of advising and following adipose patients. The personnel consists of a dietitian, a clerical aide and a physician. The time allotted is from two to three hours of one morning each week. Patients are referred after a routine history has been taken and physical, urine and blood examinations have been made.

TABLE 5.—*Life Expectancy in Overweight Persons of Middle Age*

Overweight, Pounds	Ratio, per Cent
Men	
5 to 10	100
15 to 20	116
25 to 45	127
50 to 80	153
Women	
15 to 30	119
35 to 60	124

9. Krantz, C. I., and Means, J. H.: Epinephrine Reaction in Obesity, J. Clin. Investigation **3**: 565 (Feb.) 1927.
10. Grafe, E., and Graham, D.: Ueber die Anpassungsfaehigkeit des tierischen Organismus ueberreichlicher Nahrungszufuhr, Ztschr. f. phys. Chem. **73**: 1, 1911.
11. Grafe, E., and Koch, R.: Ueber den Einfluss langdauernder starker Ueberernaehrung auf die Intensitaet der Verbrennungen im menschlichen Organismus, Deutsches arch. f. klin. Med. **106**: 564, 1912.
12. Eckstein, E., and Grafe, E.: Weitere Beobachtungen ueber Luxuskonsumtion und ihre Entstehung, Ztschr. f. phys. Chem. **107**: 73, 1919.
13. Baumann, E. J., and Hunt, L.: On the Relation of Thyroid Secretion to Specific Dynamic Action, J. Biol. Chem. **64**: 709 (July) 1925.
14. Foster, G. L., and Smith, P. E.: Hypophysectomy and Replacement Therapy in Relation to Basal Metabolism and Specific Dynamic Action in the Rat, J. A. M. A. **87**: 2151 (Dec. 25) 1926.
15. Benedict, F. G., and Carpenter, T. M.: Food Ingestion and Energy Transformations with Especial Reference to the Stimulating Effect of Nutrients, pub. 261, Carnegie Inst., Washington.
16. Medical actuarial table **2**: 12, 1911.
17. Foster, N. B.: The Relation of Hypertension to Cardiorenal Disease, Am. J. M. Sc. **164**: 808 (Dec.) 1922.
18. Joslin, E. P.: The Diabetic Problems of Today, J. A. M. A. **83**: 727 (Sept. 6) 1924.

The majority of the patients were women. While constitutional factors were present in some, lack of balance between ingestion of food and expenditure of energy was the prevailing cause of fat storage. Obesity frequently followed lactation, the mother having too zealously followed the advice "to eat plenty of nourishing food in order to furnish milk for the baby." In others, adiposity followed convalescence from operation or prolonged illness.

Certain nationalities habitually consume quantities of high calory foods. The southern Italian, for example, liberally indulges in macaroni and olive oil; the Czechoslovakian eats considerable rye bread, potato dumplings and certain kinds of cake. It is difficult to wean foreign patients from these so-called national dishes. With regard to the prevention of obesity, mothers should be informed that overeating is a habit which may be acquired during childhood, often through the efforts of overindulgent parents.

TABLE 6.—*Statistics of Obesity Clinic*

Number of patients treated, 183
Period of observation, 2 to 55 months; average, 9.8 months
Age, 6 to 73 years; average, 43 years
Sex: females, 167; males, 16
Family history of obesity in 58 per cent of the patients *

Overweight †	Pounds	Kilograms
Maximum	151	68.6
Minimum	4	1.8
Average	54	24.5

Weight loss	Pounds	Kilograms		Pounds	Kilograms
67 lost	10	(4.5) or less			
33 lost between	10	(4.5)	and	15	(6.8)
16 lost between	15	(6.8)	and	20	(9.0)
15 lost between	20	(9.0)	and	25	(11.3)
27 lost	25	(11.3) or more			
Average weight loss	15	(6.8)			

	Maximum	Minimum	Average
Weight loss in percentage of overweight	155	0	34

No loss of weight, 13.7 per cent of the patients

Number of patients with	Before Reduction	After Reduction
Systolic blood pressure above 130 mm.	101	53
Diastolic blood pressure above 90 mm.	161	89

Number of patients receiving thyroid medication, 34

* The family history was considered positive when at least one member of the immediate family was obese.
† Metropolitan life insurance tables were used to determine overweight.

The tables that were used to determine overweight are based on height and age, skeletal width not being considered. Weight is probably influenced by the width as well as by the height of the skeleton. A roentgenogram taken to show the distances between the iliac crests and the acromion processes would be an accurate way of obtaining these data. The tables show an increase of weight with age. For example, the average weight of a woman 5 feet 8 inches (173 cm.) high, at 20, is 141 pounds (64 Kg.) but at 55 it has increased to 163 pounds (74 Kg.). From an ideal standpoint, it would seem desirable to maintain the lower weight in order to decrease the burden on organs and vessels which are apt to show degeneration later in life.

Treatment consisted of a low calory diet, exercise and thyroxin in selected cases. The daily food allowance contained approximately 100 Gm. of carbohydrate, 70 of protein and 60 of fat. In hypertension, the protein intake was lowered and salt was also restricted; in patients with cardiac embarrassment, the water and salt intake was reduced. The food was apportioned as follows:

Breakfast.—One-half grapefruit or one moderate sized orange or apple or one-half cup of strawberries; two eggs; coffee or tea with one-fourth cup of milk; saccharin, and one thin slice of bread.

Lunch.—1. Five per cent vegetables, 2 cups; one egg, one medium sized apple or one orange; tea with 2 tablespoonfuls of milk.

2. Five per cent vegetables, 1 cup; 10 per cent vegetables, one-half cup; two eggs or 3⅓ ounces (100 Gm.) of broiler with 2 teaspoonfuls of butter; one medium apple or orange or 1 cup of strawberries; tea.

3. Five per cent vegetables, 1 cup; 10 per cent vegetables, one-half cup; bread, one thin slice; meat, 1⅔ ounces or cheese, 1 ounce; one-half cup of milk, and custard sweetened with saccharin.

Dinner.—1. Meat or fish, 4⅔ ounces (120 Gm.); 5 per cent vegetables, 1 cup; 10 per cent vegetables, 1 cup, one medium sized orange or 1 cup of strawberries; tea.

2. Meat, 3 ounces (90 Gm.); 5 per cent vegetables, 1 cup; 10 per cent vegetables, one-half cup (some of the vegetable may be used as salad, vinegar and liquid petrolatum being used as dressing); bread, one thin slice; one medium sized apple or orange; tea.

3. Meat, 4 ounces (120 Gm.); 5 per cent vegetables, 1 cup; 10 per cent vegetables, one-half cup; one small baked potato; one-half grapefruit or one-half cup of strawberries; tea.

The list of 5 and 10 per cent vegetables is printed on the diet prescription blank, or it may be obtained from Bulletin 128 of the Department of Agriculture or from any dietetic textbook. The exercise advised was daily walking of 2 miles in forty-five minutes or less, or calisthenics lasting ten minutes morning and night. It was apparent that ordinary housework could not replace systematic exercise. Thyroxin, 0.0008 Gm. daily, was administered to selected patients. No untoward effects were noticeable. The patient was warned to discontinue the hormone in the event of palpitation, cardiac pain, dyspnea or nervousness. It is significant that von Noorden [19] has used thyroid in obesity for the past thirty years.

The data obtained from 183 patients are given in table 6. No attempt has been made to classify the patients. The histories of those who attended the clinic for less than two months were omitted from this tabulation.

The familial tendency is as evident in obesity as it is in diabetes. There were more women than men in this group first, because their duties interfere to a lesser extent with attendance at a morning clinic; secondly, because women place more importance on appearance (figure) than men, and lastly, because obesity is probably more frequent in women than in men.

The average weight loss and reduction in blood pressure are noteworthy. To prevent their return to former habits of inactivity and overindulgence, it was necessary to follow patients periodically after weight loss had been achieved. In most instances, fatigue and breathlessness disappeared after the reduction in weight.

CONCLUSIONS

1. There is evidence in the literature pointing to a lowered specific dynamic action to protein in certain obese individuals.

2. The work of Grafe and various students points to a compensatory rise in the basal metabolism during periods of overfeeding.

3. The ambulatory clinic is useful in correcting overweight and should therefore be developed in outpatient institutions.

Seventieth Street and Madison Avenue.

19. Von Noorden, C.: Altes und Neues zur Schilddruesentherapie der Fettsucht auf Grund 30 jaehriger Erfahrung, Med. Klin. 5: 1238, 1926.

THE COMPOSITION OF PROCAINE BORATE (BOROCAINE)*

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Copeland and Notton, working in the Laboratories of Pharmacology and Chemistry, Cambridge, England, have reported on the borates of various local anesthetics, under the title "The Borocaines: A New Class of Local Anesthetics."[1] The general claim is made that the borocaines are less toxic than the original hydrochlorides, from which they can be prepared, but often exert ten times the anesthetic action. The explanation offered is that the products are easily hydrolyzed and that procaine,[2] the base, is more active than the ion (such as "procainium") when, as in the case of the latter, the highly ionized procaine hydrochloride is used. This is not a new observation, but a confirmation of work of others.

The only member of the series brought out on the open market is procaine borate; it is sold in this country by Sharp and Dohme, under license from the British Drug Houses, under the proprietary name of "Borocaine." Copeland and Notton claim that the compound is new, that they were not able to prepare a stable procaine borate of the formula given by Einhorn and Uhlfelder (the originators of novocaine), $C_{13}H_{20}O_2N_2.4B(OH)_3$.[3] The formula given by Copeland and Notton was $2(C_{13}H_{20}O_2N_2)$, $5H_2O$, $4B_2O_3$, a rather odd formula.[4] Subsequently the product was submitted to the Council on Pharmacy and Chemistry under the name "Borocaine," with the formula ascribed to it by Notton and Copeland on the label. The Council asked the A. M. A. Chemical Laboratory to investigate the product.

A factor in the consideration by the council of the right of a firm to use a proprietary name is the matter of discovery (as far as this applies to the admissibility of the drug to New and Nonofficial Remedies). Therefore, the chemical examination was undertaken along the following lines:

1. Is the product of the formula claimed, or a normal type of borate?
2. Is it a definite compound or a mixture?
3. What is its purity?

The procaine borate (borocaine) examined was a fine white, odorless crystalline powder, freely soluble in water (about 1 in 4) and in alcohol, insoluble in acetone, benzene, chloroform and ether. It was found to melt at from 165 to 166 C. (corrected). The product was found to comply with the tests for identity and differentiation as submitted by the manufacturer.

The results of the quantitative determinations were as given in the accompanying table. From the analytic data it may be concluded that the formula $2(C_{13}H_{20}O_2N_2)$, $4H_2O$, $5B_2O_3$, as given by the manufacturer and by Copeland and Notton, is incorrect; on the other hand, it appears that borocaine has the formula $C_{13}H_{20}O_2N_2.5HBO_2$ instead; this is more in keeping with the formulas given by Copeland and Notton for the borates of other local anesthetics.

Copeland and Notton reported that procaine borate, when dissolved in water, dissociated hydrolytically. An aqueous solution (with*out* addition of alkali) was therefore extracted with chloroform (six portions); it was found that 97.86 per cent of the procaine (base), *p*-aminobenzoyl-diethylaminoethanol, present in the compound could be removed by the immiscible solvent. On the other hand, approximately 0.1 per cent of procaine (base) was removed by percolation of the procaine borate powder with chloroform directly.

In view of the fact that the product dissociated so readily in water, and is a combination with such a weak acid, it was deemed advisable to investigate its crystalline character in order to determine whether or not it was a single compound or a mixture. The collaboration of Dr. Albert J. Walcott, professor of mineralogy and crystallography of Northwestern University, was obtained, who reported as follows:

> The crystals of borocaine are very small and tabular, giving the appearance of having a very fine fibrous structure. The orientation shown most frequently is of a rectangular outline: ▭ When turned 90 degrees with the axis of rotation parallel to the elongated direction, the following outline is shown: ▱
>
> There is no evidence revealed by the polarizing microscope to indicate that there is more than one compound in the sample.
>
> The following optical properties were determined: Biaxial; optically positive; 2 E very small; dispersion of violet less than red ($V < P$).
>
> Indices of refraction: α, 1.497 ± 0.002; β, 1.502 ± 0.001; γ, 1.602 ± 0.002.

Results of Quantitative Determinations

Borocaine (Sharp and Dohme)	Undried Specimen	Calculated to the Dried Specimen	Theory Calculated for $C_{13}H_{20}O_2N_2.5\,HBO_2$	Theory Calculated for Formula Offered by Copeland and Notton $2(C_{13}H_{20}O_2N_2)\,4\,H_2O.5\,B_2O_3$
Moisture (loss over sulphuric acid)	1.86*			
Procaine (base)† $C_{13}H_{20}O_2N_2$	49.64	50.58 **51.74**‡	51.82	52.87
m – boric acid,§ HBO_2	46.27	47.17 **48.26**	48.17	47.13#
Difference (undetermined)	2.23	2.25		

* Figures are reported in terms of percentage.

† Procaine, $C_{13}H_{20}O_2N_2$, was determined by extraction with chloroform from an alkaline aqueous solution and subsequent titration.

‡ Bold-face figures refer to calculations for 100 per cent product; 51.74 per cent is equivalent to 48.06 per cent HBO_2 when calculated according to formula $C_{13}H_{20}O_2N_2.5\,HBO_2$.

§ *m* – boric acid, HBO_2, was determined by distillation with methyl alcohol and subsequent titration.

Calculated from assumed B_2O_3 content in the formula of Copeland and Notton.

On investigating the literature, it was found that Einhorn and Uhlfelder[5] in 1910 were the first to describe a borate of *p*-aminobenzoyl-diethylaminoethanol, having the melting point of from 159 to 160 C., which is in general agreement with the melting point given for "Borocaine" by Copeland and Notton; the former workers ascribed the formula $C_{13}H_{20}O_2N_2.4B(OH)_3$ on rather weak evidence of only a nitrogen determination. The analytic data would have been in as close agreement for the formula $C_{13}H_{20}O_2N_2.5HBO_2$ (which this report indicates to be the correct one) as for $C_{13}H_{20}O_2N_2.4B(OH)_3$. It is my opinion that neither the formula of Einhorn and Uhlfelder nor of Copeland and Notton is correct, but that the formula

* From the American Medical Association Chemical Laboratory.

1. Copeland, A. J., and Notton, H. E. F.: Brit. M. J. **2**: 547 (Sept. 26) 1925.
2. In this article the word "procaine" refers to the base.
3. Gros, in 1911, used procaine borate (novocaine borate), which he obtained from Farbwerke Hoechst.
4. Copeland and Notton, in a footnote, expressed thanks "to Sir William Pope for his advice and assistance on the Chemical Side." An English patent on the product was issued to Sir Pope (see Chemical Abstracts, Oct. 20, 1927, p. 3425).
5. Einhorn and Uhlfelder: Annalen **371**: 131, 1910.

$C_{13}H_{20}O_2N_2.5HBO_2$ appears to be the correct one. Furthermore, it is my opinion that the compound described by Copeland and Notton is identical to the one first prepared by Einhorn and Uhlfelder some years ago. [Subsequently, Sharp and Dohme informed the laboratory that their research chemist agreed with the formula proposed by the A. M. A. Chemical Laboratory and that the label would be changed accordingly.]

SUMMARY

1. The product marketed as "Borocaine" is procaine borate, a borate of *p*-aminobenzoyl-diethylaminoethanol.

2. It is a definite chemical compound.

3. It is readily hydrolyzed when dissolved in water, and acts as an aqueous solution of boric acid to which has been added procaine (base).

4. The formula $C_{13}H_{20}O_2N_2.4B(OH)_3$, as first ascribed by Einhorn and Uhlfelder, also the formula $2(C_{13}H_{20}O_2N_2).4H_2O$, $5B_2O_3$, reported by Copeland and Notton, were not verified.

5. It is concluded from the analytic data obtained that Borocaine possesses the formula $C_{13}H_{20}O_2N_2.5HBO_2$, and that it is not a hitherto undiscovered compound.

6. Except as herein noted, the product conforms to tests of identity and purity for procaine borate of the formula $C_{13}H_{20}O_2N_2.5HBO_2$.

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THE ACTION OF OILS IN MUSCLE TISSUE*

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In former studies from this laboratory we have shown that coal tar, mazola oil and other lipoid solvents remain encapsulated when introduced into the subcutaneous tissue of animals.[1] The degree of encapsulation and the nature of the tissue change in these capsules is governed by the particular dietary given the animal. The vitamin A fraction of the diet plays the major rôle in these changes.[2] On a low vitamin A dietary the oil remains in a single droplet, while on a high vitamin A dietary the oil breaks up into numerous smaller droplets. The degree of the breaking up of the coal tar or oil also varies with the oil or tar used. Mazola oil breaks up more readily than coal tar under otherwise similar conditions.

It has been customary for many years to use one of the various mineral or animal oils as a vehicle for the administration of certain drugs. Permanent oil tumors have been found to result from such injections into the subcutaneous tissue. In many instances following these injections, the oils have become broken up into small droplets and scattered in the tissues, so that they have not attracted any attention. In other cases the oil has remained in a single droplet. These droplets have often remained quiescent in the tissues of the individual and have been thought by many to be harmless. As more and more of these injections have been made, it has been noticed that in a few individuals these tumors become active again after a time. They increase in size and become painful, and in a small percentage of cases in which paraffin has been injected, cancers have developed in them. Two such cases have been reported in this country and one in Europe.[3] In the course of a study of these tumors in the laboratory, one patient who had had a small innocent tumor in her arm for many years placed herself on a vitamin free dietary. This tumor, which was only a few millimeters in diameter, became active at once, increased in size to that of a walnut, and became very painful within three weeks. She then returned to a dietary rich in vitamins. The tumor receded to its former size within the next eleven days.[4] It is evident, therefore, that vitamins play as important a rôle in the development of these tumors in man as in animals.

It has been thought that oil injected into muscle would be absorbed or would be dispersed into such small droplets that a tumor would not be formed. Liquid petrolatum is commonly used as a vehicle for the administration of mercury.[5] It has also been thought that vegetable and animal oils are much more readily absorbed than mineral oils. From our studies we have been unable to find any evidence that one kind of oil is absorbed more readily than another from the subcutaneous tissue. There has not been any evidence to show that one is less harmful than others if given a chance to become active in the tissue.

It became of interest, therefore, in these experiments to study the behavior of these various oils when they were injected into muscle. The oils used were vegetable, animal and mineral in nature. The muscles of the back and of the thigh were used, so that a comparative study could be made of changes in less active and active muscles, respectively. Care was used in injecting the oil so as to introduce it into the central portion of the belly of the muscle. White rats were the animals used.

The animals were killed at various intervals, ranging from seven days to eight months after the injection of the oil. The muscle was removed intact, placed in 10 per cent solution of formaldehyde, and sectioned after an adequate period of fixation.

In the fifty animals studied we have found the oil tumors in every case. The size of these tumors is practically the same as the original quantity of oil injected. The tumors are not in the muscle bundles, but in the intramuscular connective tissue. Small oil droplets were found between the muscle fibers of the bundles in a few cases only. The oil has apparently been pushed out by muscular contraction, so that it formed into encapsulated masses in the intramuscular septums. In these septums one finds various sizes of oil tumors which are typical of those in subcutaneous tissue. Microscopically, the structure of these tumors is typical of those in connective tissue elsewhere.[6] The oil droplets are encapsulated by a zone of fibrous tissue. In the tumors which are about 30 days old, the capsule is composed of the connective tissue of the septums and a small zone of closely packed fibroblasts immediately about the oil droplets. After from ninety days to

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1. Jorstad, L. H.: J. Cancer Research **9**: 232-253 (June) 1925; **10**: 229-238 (July) 1926.

2. Jorstad, L. H.: J. Exper. Med. **42**: 221-230 (Aug.) 1925; Jorstad, L. H., and Johnston, C. G.: Local and Systemic Changes Induced by Lipoid Solvents in Animals Fed Dietaries Varying in Vitamin Content, Am. J. Path. **3**: 489-499 (Sept.) 1927.

3. Leitch, Archibald: Brit. M. J. **2**: 1104-1106 (Dec. 9) 1922.

4. Burrows, M. T., and Jorstad, L. H.: Cause of Growth of Sarcoids or Oil Tumors, J. A. M. A. **88**: 1460-1462 (May 7) 1927.

5. Mook, W. H., and Wander, W. G.: Camphor Oil Tumors, Arch. Dermat. & Syph. **1**: 304 (March) 1920.

6. Burrows, M. T., and Johnston, C. G.: Action of Oils in Production of Tumors with Definition of Cause of Cancer, Arch. Int. Med. **36**: 293 (Sept.) 1925. Jorstad, L. H., and Johnston, C. G.: Proc. Soc. Exper. Biol. & Med. **24**: 86-88 (Oct.) 1926.

eight months, the capsule is composed of mature fibrous tissue, some areas of which have undergone hyaline changes.

COMMENT

It becomes evident, therefore, that the introduction of oil into muscle results in the production of tumors not unlike those in the subcutaneous tissue. Such oil tumors may therefore be a cause of undiagnosed pain in muscle. They not only may become a menace from the causes and under the conditions mentioned, but may produce general as well as local changes in the individual. We have observed fatty infiltration of the liver resulting regularly in animals fed a dietary high in vitamin A after a single injection of any of these oils.[7] There also seems to be little doubt from our studies that any of these oils may be the seat of cancerous development, as cancers have followed the introduction of paraffin.

CONCLUSION

Oils injected hypodermically into the muscle tissue of white rats localize to form tumor masses in the connective tissue surrounding the muscle bundles.

These tumors tend to remain for long periods of time.

Special Article

THE TREATMENT OF TINEAL DERMATITIS OF THE EXTREMITIES

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Ringworm of the hands and feet usually begins, and persists for a long time, as a subacute inflammatory process in the interdigital spaces between the three outer toes. Usually this consists simply of an excess of thickened horny epidermis with some moisture between the toes, and with some fissuring and excoriations. Along with this there often occur, usually in warm weather, blebs on the soles, particularly under the arch. These blebs are deep-seated, rather large, and with translucent contents which later become yellowish. The blebs may be isolated but they more frequently occur in groups. At the time of their development, they are tender from tension. Later, with absorption of their contents, this discomfort disappears. They may rutpure, but from the toughness of their outer wall they may remain intact until their contents are absorbed. Then, after a week or ten days, the dead epidermis peels off, leaving a polycyclic, slightly inflamed patch, which gradually returns to normal. Such lesions may occur on the palms as well as the soles, but they are very much more frequent on the soles. With the chronic infections between the toes, outbreaks of these patches on the palms and soles may recur repeatedly without an attack developing that gives the patient any concern, or that he seeks advice for.

This is the picture of the subacute condition, which may persist as such for many years. Occasionally it develops into an acute outbreak of dermatitis, spreading over the hands and feet and even more extensively. Instead of a few vesicles or blebs, there is an outbreak of an extensive eruption of these lesions. This is most abundant on the palmar and plantar surfaces, and is particularly marked between the fingers and toes, but may extend widely. It is a manifestation, though of much wider extent, of the same sort of reaction that produces the small group of lesions. On the palmar surfaces it produces the same large blebs, because of the thickness of the horny epidermis; between the digits and on the dorsal surfaces, because of the thinner horny epidermis, it produces smaller blebs and vesicles. The picture is one of an acute dermatitis of the parts, which might be produced by inflammation from any irritant; it is clinically distinguishable simply by its location and distribution. The acute stage may run its course without particular evidence of secondary pyogenic infection. As a rule, pyogenic infection complicates the picture after a little while. In rare cases there is a complication of lymphangitis. Indeed, this lymphangitis is a rare but most important complication even of the subacute form between the toes. In some patients with nothing more than a slight maceration between the toes there is a history of lymphangitis of the leg, of which so many recurrent attacks have taken place as to produce elephantiasis of the affected leg.

TREATMENT

In the treatment of the acute outbreaks, the first indication is to get rid of the active symptoms. This is done best with wet dressings. An excellent solution for this purpose is aluminum acetate, prepared according to the following formula: 8 per cent solution of aluminum subacetate, N. F. (formerly called acetate), 1 ounce (30 cc.), and water to make 1 pint (500 cc.). Fairly wet dressings of this solution are applied as nearly continuously as possible. Boric acid, 4 per cent, or potassium permanganate, from 1:3,000 to 1:6,000, may also be used for wet dressings, but there is nothing better than aluminum acetate.

At the same time, even in this acute stage, it is desirable to paint between the toes, at least once a day, with a stronger antiseptic, such as: metaphen, 1:500; 2 per cent potassium permanganate solution, and 2 per cent mercurochrome-220 soluble. Before this is done, the bullae should be opened and macerated tabs of epidermis trimmed off. Distinctly purulent areas, especially on the palms and soles, should also be painted with one of these antiseptics.

In this stage patients are likely to soak their feet in water because of an impression that it does good or because it gives temporary comfort. They should be warned against this, as it does harm.

In the acute stage the patients should rest in bed. If lymphangitis is present, there should be, of course, strict rest of the affected limb.

Under such treatment the acute stage quickly subsides. Most of the areas become covered by horny epidermis; weeping is confined to isolated spots, and the surfaces become pink with a little scaling. When this stage is reached, wet dressings of a weak solution of potassium permanganate, 1:3,000 in water, can often be substituted with advantage. These may be used continuously or alternated with wet dressings of aluminum acetate solution. When most of the affected parts have become practically normal under this treatment, it may be carried further by soaking the parts in aluminum acetate solution or potassium permanganate solution for ten or fifteen minutes night and

7. Jorstad, L. H.: Proc. Soc. Exper. Biol. & Med. **24**: 723-725, 1927.

morning and applying a salve several times a day. Whitfield's ointment is the classic salve used in this condition. In its full strength, its formula is as follows: 30 grains (2 Gm.) of salicylic acid; 60 grains (4 Gm.) of benzoic acid and sufficient base (petrolatum, cold cream or zinc oxide ointment) to make 1 ounce (30 Gm.)

In beginning the use of this ointment in cases in which the acute outbreak is subsiding, the strength should not be greater than 1 drachm (4 Gm.) of this salve to 7 drachms (27. Gm.) of base. As the condition gets better, the strength of the salve can be gradually increased, the wet dressings and soakings of the parts stopped, and painting with the stronger antiseptics that have been mentioned substituted. This painting should be done once or twice daily and should be confined to the palms and soles and isolated areas elsewhere. It should be used carefully in the interdigital spaces.

Under treatment of this sort, one can bring the condition back to the chronic stage between the toes at which it started. The treatment of this chronic condition after acute attacks is of course the same sort of treatment that would be given to it when the cases are seen before acute attacks. Unfortunately, the results of treatment of the chronic condition are not nearly so definite and prompt as those of the acute condition. All of the treatment of the chronic condition between the toes is directed to getting rid of the infection, chiefly by the use of parasiticides as strong as can be used without their producing irritation. One of the primary necessities in treatment is to see that the dead horn and thick epidermis are kept cleaned down as far as possible. One is often advised to curet the interdigital spaces, but this is apt to be an overzealous measure. It is usually sufficient to instruct the patients to rub out thoroughly all dead horn between the toes and to trim off the dead epidermis. This should be done at least once a day and an antiseptic always applied afterward. The antiseptics already mentioned, as well as tincture of iodine, are used between the toes in this stage of the condition. Perhaps, taking it all in all, tincture of iodine is the best application for use between the toes at this stage. If these antiseptics are used once a day, it is well to use between the toes also, once a day, say at night, Whitfield's ointment in as strong a concentration as it can be applied without producing irritation. This may be half strength or even full strength.

Persistence along these lines for weeks and often months is necessary to get the condition between the toes under control. Even then, it tends to recur. When it does, treatment along the same lines needs to be repeated.

The application of roentgen rays in moderate doses is commonly recommended in all stages of the condition. The rational indications for the use of the roentgen ray are not clear but their application is generally regarded as useful.

Protein.—For health and growth, a suitable proportion of the total calories (at least one tenth) must be in the form of protein, most of which may be derived from ordinary vegetable foods. These may well be supplemented by proteins from milk, cheese, eggs, meat, to make sure that the quality of the protein mixture represented in the diet as a whole is suitable.—Report, Joint Health Committee, Health Education, p. 37.

Council on Physical Therapy

THE FOLLOWING ARTICLE HAS BEEN APPROVED BY THE COUNCIL ON PHYSICAL THERAPY OF THE AMERICAN MEDICAL ASSOCIATION. H. J. HOLMQUEST, SECRETARY.

CUTANEOUS ROENTGEN-RAY AND RADIUM THERAPY

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This is one of the series of articles to be published by the Council for the purpose of setting forth the known merits and limitations of physical therapy. When completed these articles will be published in book form.

ROENTGEN-RAY THERAPY

Apparatus. — Apparatus designed for cutaneous roentgen-ray therapy does not differ in principle from that used for deep therapy or for diagnostic work. The essential features of such apparatus are described in an article that will be published in an early issue.

For superficial therapy it is usual to employ an interrupterless transformer that will deliver a crest or peak voltage of at least 115 kilovolts. In order to save time in filtered work, many prefer 140 or more kilovolts. The roentgen-ray wavelengths commonly used for practical purposes probably range between 0.3 and 0.06 angstrom unit. The comparatively long wavelengths are used for superficial work. In terms of voltage or spark gap lengths, the range for superficial therapy is, ordinarily, between about 60 and 140 kilovolts, or from a 3-inch to a 9-inch gap between blunt points at sea level. A broad focus, standard type Coolidge tube is universally used in this country, with which it is customary to employ from 2 to 5 milliamperes.

Wavelengths averaging 2 angstrom units are also used for superficial therapy. Various terms have been applied to this radiation, such as "oversoft," "supersoft," Grenz or borderline, and infraroentgen. Waves of this length are obtained with voltage of from 6 to 10 kilovolts (spark gap, a few millimeters between needle points). The special tube for this work is of the hot cathode type, but it has several features that are not characteristic of the Coolidge tube. It is very small and, with the exception of a Lindermann (lithium) glass window, it is entirely encased in a metal housing. The water-cooled, conical anode is composed of chromium iron. The lithium glass, having a low atomic weight, permits the passage of wavelengths that would be absorbed by ordinary glass. The tube is energized with a transformer designed to provide a maximum of 10 kilovolts and 10 milliamperes. The positive side of the transformer is grounded. The negative potential and the filament current reach the tube through an insulated cable with a grounded, metallic covering.

Technic.—Pastille and photographic methods of measurement are not in favor among practical workers in this country. Spectrographs, spectrometers and ionization chambers, while indispensable to the physicist, are not suitable for the average practical worker who has very little knowledge of physics. The evolution of these instruments is of prospective importance, practically as well as scientifically.

In this country the so-called indirect technic, controlled by skin effects, is used by the majority of physicians who treat skin diseases with the roentgen ray.

The operator first calibrates the voltmeter or has it done by a physicist. This is accomplished with the spark gap, or with instruments such as the spectrometer, iontoquantimeter or electrostatic voltmeter. The meter is calibrated for combinations of kilovoltage from perhaps 60 to 140, with 2, 3 and 5 milliamperes. The operator then decides on the combination of factors or constants (milliamperage, voltage and distance) that are to be used as a routine, and ascertains the time for the erythema dose. This factor may be determined by experiments on animals or plants, but most operators obtain the desired information by first irradiating their own skin, after which the technic is controlled by administering an erythema dose in diseases that require such treatment.

After a set of constants, with the particular apparatus and tube, has been standardized for the unfiltered erythema dose (skin unit), the unit for any set of constants, with the same apparatus and tube, may be obtained arithmetically in accordance with the following rules:[1]

1. Quantity varies as the square of the voltage.
2. Quantity varies as the milliamperage.
3. Quantity varies as the time.
4. Quantity varies inversely as the square of the distance.

The filtered skin unit, or erythema dose, is obtained in the same way for any given thickness of aluminum or other filtering material.

The technic may be determined and checked with instruments such as those previously mentioned, but such work should be done only by those skilled in the use of these methods of qualitative and quantitative estimation.

There is need for an international dose unit. It is possible that the electrostatic unit, somewhat as outlined by Duane, will be accepted as a universal, standard unit. Quality may then be given in effective wavelengths and intensity in E units. These two factors, added to the time of application, will give the dose. It will, of course, be necessary to specify the amount of filtration. The depth dose can be estimated with the aid of a water phantom. The number of such units for the erythema dose will vary according to conditions, but the unit will have the same meaning for physicist and practical worker. Such a unit is not likely to be correctly estimated in practical work until there is a small iontoquantimeter, calibrated in E units, that will give accurate results when used by those who have little knowledge of physics.

Surface and depth dose charts, for both the roentgen ray and radium, made by physicists and radiologists, are obtainable and they are of value. However, regardless of how the technic is obtained, the final test is always the visible effects on human skin.

Erythema Dose.—Among dermatologists, the generally accepted standard for the erythema dose is the amount of radiation that will effect faint but definite erythema in about a week, in an area 1 inch square, on the flexor surface of the average young adult with fair skin. This standard is high for children and adolescents, and for large surfaces. It is low for very small areas, for aged persons, dark skin and even for extensor surfaces. It is, therefore, an average standard for which corrections must be made.

1. These rules pertain only to the dose received at the surface; not to the biologic or therapeutic effect.

GENERAL THERAPEUTIC CONSIDERATIONS

Variations in Skin Toleration.—There are marked variations in skin toleration to the roentgen ray and radium. The causes for these variations are: age, sex, complexion, part of body, texture and thickness of the skin, local hyperemia or anemia, constitutional diseases, local diseases, and effect of topical remedies. Technical causes are: size of area, and variations in quality and quantity of radiation. In addition to the foregoing reasons, there are differences in toleration which appear to be inherent. Toleration embraces sequelae as well as acute reactions.

Systemic reactions of a toxic nature result from large doses, and they are probably due to chemical changes in the tissue.

Quality of Radiation.—As a routine, most dermatologists use 100 kilovolts (6-inch gap) and no filter. This is largely a matter of convenience. The therapeutic effect appears to be the same for a very wide range of wavelengths. The local pathologic condition in most of the dermatoses that are amenable to roentgen-ray therapy varies in thickness or depth from 0.07 millimeter to several centimeters. In order to avoid unnecessary penetration, it would seem logical to vary the wavelength in accordance with thickness or depth of the abnormal tissue. Frequent technical alterations favor dose errors. The small quantities, with moderate voltage, used by dermatologists as a routine do not injure the deeper tissues, yet the penetration is sufficient for ordinary purposes. For these reasons, it has seemed advisable to select an average quality for routine use and vary the penetration only when unusual conditions are encountered.

The object of filtration is to remove the wavelengths that would be absorbed by very superficial tissue, and to obtain a more uniform dose through a greater depth of tissue. Filtered radiation, with moderate voltage (from 100 to 137 kilovolts) is usually employed for very thick lesions and for subcutaneous tumors. A filter of from 0.25 to 3 mm. of aluminum, usually the latter, is employed for this purpose.

Very long wavelengths (about 2 angstrom units; 10 kilovolts or less) are being used therapeutically for very superficial conditions with good results. This radiation seems especially desirable when it is advisable to avoid, as much as possible, any effect below the papillary layer of the skin—diseases of the scalp, eyelids, eyebrows, scrotum, etc. The cutaneous reactions develop within twenty-four hours, they are superficial, and they heal with comparative rapidity. It is asserted that sequelae do not develop subsequent to even intense reactions, but this is by no means a proved fact.

One hesitates to predict what wavelengths will be used for cutaneous roentgen-ray therapy in the future. The quality will probably depend on the type of apparatus and the results of chemical, biologic, clinical and physical research now being conducted. At present, at one extreme is the advocate of filtered radiation, even of the shortest possible wavelengths, for the most superficial skin diseases. At the other extreme are those who insist on extremely long wavelengths even

when the pathologic tissue is thick or fairly deep. It may be some time before the dermatologist ceases to use unfiltered radiation at moderate voltage, as a routine.

Quantity.—Most of the cutaneous diseases that are amenable to roentgen-ray therapy respond satisfactorily to a few small doses. As a routine it is customary to give one-fourth erythema dose once weekly. A few such treatments suffice for many dermatoses, although some diseases require a course of from six to sixteen treatments. Occasionally, it is necessary to give two or more short courses of treatment with rest intervals of several months. For generalized eruptions the dose is reduced to one-eighth or one-sixteenth skin unit. For some diseases, especially with small lesions, it is necessary to apply doses ranging from one-half to four units, filtered or unfiltered, at intervals of from one to several months. Unless specifically indicated, quantities sufficient to evoke erythema are avoided, because even a mild, transient erythema may be followed by disfiguring and even dangerous sequelae. Naturally, also, there is a limit to the number of small, repeated doses that can be given without danger of permanent injury to the skin and other organs.

The technic and dosage for the 2 angstrom units wavelength therapy has not been standardized. With this radiation it is customary to give one or several times the erythema dose. While such treatment, with proper technic, appears to be safe, it would be unwise to state, at the present time, that the method is free from danger.

Training.—The roentgen ray is the most valuable single therapeutic agent in the armamentarium of pure dermatology. However, both it and radium are dangerous modalities in unskilled hands. The physician who employs these agents should possess, in addition to adequate equipment, a knowledge of their nature, biologic and therapeutic action and, of course, a thorough technical training.

Space does not permit even an enumeration of the many requirements of cutaneous roentgen-ray and radium therapy. In addition to those mentioned, the physician should have a broad knowledge of dermatology—of cutaneous medicine. He must know all the indications and contraindications pertaining to the use of physical therapeutic agents, and general medical and dermatologic methods for the treatment of every skin disease. This requires a thorough training in cutaneous medicine which embraces cutaneous roentgen-ray and radium therapy and other physical therapy methods. In communities or institutions where this is impossible, there should be perfect cooperation between radiologist and dermatologist.

Radium Therapy

In general, what has been stated regarding the roentgen ray pertains to radium. There are a few special requirements for cutaneous radium therapy that should be mentioned.

Naturally, radium is not suitable for the treatment of generalized eruptions and it is seldom used for very large lesions. For small lesions the results, in general, are the same as those obtained with the roentgen ray. There are a few diseases that are therapeutically more susceptible to radium, especially the beta rays, than to the roentgen ray. The injuries that may be effected are practically the same for each agent. The dose requirements also are much the same.

Equipment.—The popular applicator among dermatologists, for routine use, is a half-strength, square, flat, glazed radium element plaque. The size of such an applicator varies from 1 by 1 cm. to 2 by 2 cm., and it contains from 2.5 to 10 mg. of radium element. Oval and round applicators of the same type are used by many. For very superficial lesions it is customary to use a screen (filter) of 0.1 mm. of aluminum. This will suffice to eliminate practically all the "soft" beta rays. For thicker or deeper lesions, only gamma rays are used. A brass screen 2 mm. thick, or 1 mm. of silver or lead, will absorb practically all the beta rays. Radium tubes and needles are also popular, especially for very thick, deep-seated or convex lesions.

Radon (radium emanation) applicators—glass tubes and gold seeds or implants—provide greater flexibility than can be obtained with radium element. Tubes containing 25 or 50 millicuries of radon are about 0.5 mm. outside diameter and from 12 to 30 mm. in length. They may be placed in needles or, suitably screened, they may be scattered through a mold of a lesion made of dental compound or other plastic material. They may be placed side by side to make a flat applicator.

A millicurie of radon has the same initial gamma ray activity as a milligram of radium element, but owing to the rapid decay of radon there is a falling activity that amounts to about 0.75 per cent per hour, or approximately one sixth in twenty-four hours, one half in 3.85 days, and 99.5 per cent in thirty days.

Gold seeds are about 0.3 mm. in external diameter and about 3 mm. long, and contain from 0.5 to 2.5 millicuries of radon. They are embedded one for each cubic centimeter of tissue and are left permanently in situ. They should not be embedded in the walls of hollow organs, directly on thin bones, or against the walls of large vessels.

Technic.—In this brief article it is not possible to enter into technical details. When radon is used, it is usually necessary to engage the services of a physicist to estimate the gamma ray activity before the dose can be computed. The erythema dose for each radium element applicator must be determined by actual experiments on human skin, both in contact and at a distance, and also with various screens. When heavy metals are used, it is necessary to absorb soft secondary rays with aluminum or rubber. A physician should not attempt to treat disease, especially prickle cell epithelioma, with radium without adequate equipment and training. For a study of this subject the reader must consult textbooks.

Protection

The operator and the patient must be guarded against electrical shock and against local and general roentgen-ray and radium injuries. Radium, when not in use, should be kept in a very heavy lead box and at as great distance as possible. Radium applicators should never be handled with the fingers. Forceps, holders and various devices for the proper handling of all types of radium applicators are on the market. When giving roentgen-ray treatment, the operator should remain behind a lead shield, at considerable distance from the tube, and out of the field of direct radiation. In addi-

tion, the tube is placed in a housing of lead or lead rubber. One of the greatest sources of danger to the patient is the unintentional omission of the filter. In addition to automatic devices, the operator should have this possibility constantly in mind. Electrical shock can be prevented by automatic safety devices, by remaining at an adequate distance from high-tension lines, and by never placing the patient between a high-tension line and a grounded conductor.

THERAPEUTIC RESULTS

The roentgen ray and radium, especially the former, have been found beneficial in more than eighty skin diseases. All that can be done in the allotted space is to enumerate these dermatoses and roughly indicate the technic and the value of the treatment. The diseases are grouped approximately in accordance with the results obtained. The letter F indicates that filtration is used as a routine: for the roentgen ray, from 0.25 to 3 mm. of aluminum; for radium, at least 2 mm. of brass with the applicator placed usually at a distance of from one-half to 1 inch. Radium is seldom used entirely unscreened. As a routine it is customary to filter with 0.1 mm. aluminum for superficial effects. The numerals indicate the technic that is employed by most dermatologists as a routine, thus:

1. Fractional: ¼ erythema dose once weekly.
2. Subintensive: ¾ erythema dose once monthly.
3. Intensive: Erythema dose, repeated if necessary in about six weeks.
4. Hypertensive: Between one and four times the erythema dose.

Not repeated until all evidence of reaction has disappeared.

It is to be understood that these are exceedingly general terms. For instance, two or three times the erythema dose may be applied to a very small, thick lesion such as a wart, with but slight reaction, while the same dose applied to a thin lesion with a surface 4 inches square might effect a severe reaction.

GROUP 1.—Diseases which very often cannot be permanently cured without the use of the roentgen ray or radium:

Bromidrosis (localized). 1.	Hyperhidrosis (localized). 1; 2.
Chromidrosis. 1.	Keloid. 2; F.
Dermatitis papillaris capillitii. 2.	Rhinoscleroma. 1; 2; F.
Favus of the scalp. 3.	Tinea tonsurans. 3.

GROUP 2.—Diseases in which irradiation is usually the most useful if not the only useful treatment:

Hodgkin's disease of the skin. 1.	Pruritus (localized). 1.
Leukemia cutis. 1.	Sarcoma (giant cell). 4.
Mycosis fungoides. 1.	Sarcoma (Kaposi). 3; 4.

GROUP 3.—Rare diseases in which irradiation is reported to have given excellent results in a few instances. If further observation supports these reports, these diseases may be transferred to group 1 or group 2.

Acanthosis nigricans. 1.	Keratosis follicularis. 1.
Addison's disease. 1; 2; F.	Kraurosis vulvae. 1; 4.
Granulosis rubra nasi. 1.	Parapsoriasis (lichenoid type). 1.

GROUP 4.—Roentgen-ray therapy gives such excellent results in these diseases that it is usually the method of election. However, there are other successful therapeutic methods, and irradiation sometimes fails. Selection is necessary.

Actinomycosis. 1; 2.	Lupus miliaris disseminatus. 2; 3.
Angioma (cavernous). 2; F.	Scrofuloderma. 2; F.
Blastomycosis. 1; 2.	Sycosis vulgaris. 1.
Carbunculus. 3; F.	Synovial lesions of the skin. 2; 3.
Granuloma annulare. 2.	Tinea barbae. 3.
Lupoid sycosis. 1.	Verruca plantaris. 3; 4.

GROUP 5.—Diseases that may be cured or benefited by irradiation alone, or by various surgical and medical methods. Selection of cases is necessary and very often combined treatment is used.

Epithelioma (basal cell). 4.	Paget's disease. 4; F.
Erythema induratum. 2; F.	Sarcoid. 2.
Keratoses. 4.	Tuberculosis orificialis. 3.
Lupus vulgaris. 2.	Tuberculosis verrucosa cutis. 2; 3.

GROUP 6.—Diseases that can be cured or benefited by orthodox dermatologic treatment, or by irradiation alone. Selection is often advisable, as also is combined treatment.

Acne varioliformis. 1.	Cheilitis glandularis. 1.
Acne vulgaris. 1.	Cornu. 3.
Cheilitis exfoliativa. 1.	Verruca vulgaris. 3.

GROUP 7.—Conditions in which roentgen-ray therapy is very uncertain, as are all methods of treatment, but in which it produces prompt and permanent cures in some cases:

Onychomycosis. 1; 2.	Paronychia (chronic). 1; 2.

GROUP 8.—Conditions in which the roentgen ray is often useful after other remedies have failed to effect prompt relief:

Furunculosis. 1.	Rosacea. 1.
Pityriasis rosea. 1.	Sporotrichosis. 1.

GROUP 9.—Diseases that may be cured or benefited with the roentgen ray or radium, but in which more certain or better results are often obtained with other methods of treatment. Irradiation is indicated in selected cases, alone or in combination.

Callositas. 2.	Nevus pilosus. 3.
Epithelioma (prickle cell). 4; F.	Rhinophyma. 1; 2.
Hypertrichosis. 3.	Sarcoma (general types). 4; F.

GROUP 10.—Diseases in which roentgen-ray therapy is often of great value for the relief of annoying subjective and objective symptoms, but in which such treatment should be subordinate to intelligent dermatologic management:

Dermatitis exfoliativa. 1.	Intertrigo. 1.
Dermatitis venenata. 1.	Lichen planus. 1.
Eczema. 1.	Neurodermatitis. 1.
Eczematoid ringworm (dermatophytosis). 1.	Pompholyx. 1.
Infections eczematoid dermatitis. 1.	Psoriasis. 1.

GROUP 11.—Roentgen-ray or radium therapy may be of some temporary benefit in these diseases:

Lupus erythematosus. 1; 3.	Tuberculid. 1.
Prurigo. 1.	

GROUP 12.—The roentgen ray and radium have been successfully employed in diseases of this group, but experience has not been sufficient for a true estimation of the value of such treatment:

Epithelioma (multiple benign). 2.	Lymphangitis (chronic of skin). 1.
Folliculitis decalvans. 3.	Molluscum contagiosum. 2.
Granuloma pyogenicum. 2.	Pernio. 1.
Lichen nitidus. 1.	Sporotrichosis. 1.
Lichen scrofulosorum. 1.	Syringoma. 2.

GROUP 13.—Diseases in which beta rays of radium are more efficacious than are gamma rays or the roentgen ray.

Angioma (superficial cavernous). 2.	Kraurosis vulvae. 3; 4.
Angioma (strawberry mark). 2.	Leukoplakia. 3; 4.
Cornu (soft). 3.	Lupus erythematosus discoidius. 3.
Keratoses (small). 3; 4.	Lymphangioma circumscriptum. 3.

Evidences of Growth and Health.—In addition to the weighing of children, which can be done by health workers other than physicians, other well established evidences of growth and health should be employed. These include (1) color of skin and mucous membranes, (2) luster of the eyes, (3) bodily posture and bearing, (4) firmness of tissues, (5) presence of subcutaneous fat, (6) alertness or keenness of nervous and muscular action, (7) susceptibility to fatigue, and (8) condition of digestion and assimilation of foods, and excretion of waste.—Report, Joint Health Committee, Health Education, p. 28.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, JANUARY 7, 1928

THE PROTEIN REQUIREMENT OF ADULT MAN

The protein requirement of adult man has been the subject of debate for a quarter of a century. Prior to that time the so-called Voit standard, postulating an average intake of 118 Gm. of protein in a diet yielding about 3,000 calories daily, was regarded as appropriate for an average sized man engaged in moderate work. Atwater and his associates formulated the requirement to include as much as 175 Gm. of protein for persons engaged in active muscular exertion and as little as 100 Gm. for persons of the sedentary type. Such figures were derived from surveys made with considerable care both in America and elsewhere, notably in Germany, England and France. They represented the outcome of what has been described as the statistical method applied to the study of nutrition.

The question whether allowances of protein ranging from 100 to 175 Gm. a day, such as those just quoted, are actually necessary in order to keep the body in nitrogenous equilibrium and provide for well being was actively raised by Chittenden soon after the beginning of the present century. There had been occasional indications, based on direct "balance" experiments, that pointed to the possibility of satisfying the protein requirement, at least to the extent of preventing a depletion of the body, by intakes far smaller than the Voit or Atwater standards called for. As the outcome of an elaborate investigation, Chittenden [1] ventured the belief that "the physiologic needs of the body are fully met by a metabolism of protein matter equal to an exchange of from 0.10 to 0.12 Gm. of nitrogen per kilogram of body weight daily, provided a sufficient amount of non-nitrogenous foods is taken to meet the energy requirements of the body." In the case of a person of the average weight of 70 Kg. (154 pounds) this corresponds to from 44 to 53 Gm. of protein a day. Many years later Sherman,[2] making an elaborate compilation of the available studies, found more than a hundred experiments on adults showing no abnormality of digestion or health, in which the diet was sufficiently well adjusted to the probable requirement and the nitrogen balance showed sufficient approach to equilibrium to make it appear that the total output of nitrogen might be taken as an indication of the protein requirement. These experiments are selected from twenty-five independent investigations in which forty-seven different persons (thirty-nine men and eight women) served as subjects. For purposes of comparison the daily output of total nitrogen in each experiment was calculated to protein and this to a basis of 70 Kg. of body weight. Reckoned in this way, the apparent protein requirement as indicated by the data of individual experiments ranged between 21 and 65 Gm., averaging 44.4 Gm. of protein for each 70 Kg. of body weight daily. Average results for men and for women were practically identical when calculated to the same basis of body weight. Apparently the most influential factor leading to such low "levels" of protein metabolism was the extent to which the subject had become accustomed to a low protein diet.

The protagonists of the lowered intake of protein have been vigorous in their defense of its alleged advantages. Chittenden himself wrote, twenty years ago, that "the penalties of excessive proteid consumption are found in many ills, for which perhaps the victim seeks in vain a logical explanation; gastro-intestinal disturbance, indigestion, intestinal toxemia, liver troubles, bilious attacks, gout, rheumatism, to say nothing of many other ailments, some more and some less serious, are associated with the habitual overeating of proteid food." The other extreme of contention was simultaneously formulated by Benedict.[3] It is clear, he wrote, that while men may for some months reduce the proportion of protein in their diet very markedly, and apparently suffer from no deleterious consequences, yet, nevertheless, a permanent reduction of the protein beyond that found to be the normal amount for man is not without possible danger. The fact that a subject can so adjust an artificial diet as to obtain nitrogenous equilibrium, with an excretion of nitrogen amounting to only 2 or 3 Gm. a day, is no logical argument for the permanent reduction of the nitrogen in food for the period of a lifetime. Furthermore, it is a matter of common observation that during the period of growth a considerable proportion of nitrogen in the diet must be maintained, otherwise the growth is defective. After the body has attained its growth, there is a period of years during which a liberal supply of protein must in all probability be used. With declining years and less muscular activity, the amount of total food as well as of protein can probably be advantageously lowered.

The advocates of the high standard have stressed the experience of mankind as expressed in food habits.

1. Chittenden, R. H.: The Nutrition of Man, New York, F. A. Stokes Company, 1907.
2. Sherman, H. C.: Protein Requirement of Maintenance in Man and the Nutritive Efficiency of Bread Protein, J. Biol. Chem. **41**: 97 (Jan.) 1920.
3. Benedict, F. G.: The Nutritive Requirements of the Body, Am. J. Physiol. **16**: 409 (Aug.) 1906.

They point out how dietary studies all over the world show that in communities where productive power, enterprise and civilization are at their highest, man has instinctively and independently selected liberal rather than small quantities of protein. Pearl [4] has estimated the daily protein intake of the people of the United States as 121 Gm. Of late there have been indications of a gradual shift in the normal protein intake.[5] The new levels seem to be somewhere between the standard of Atwater and that of Chittenden. A new consideration was injected into the discussion when Denis and Borgstrom [6] reported analyses of the total nitrogen in the urine of 233 medical students in New Orleans, over a period of three years, with an average local temperature of from 13 to 23 C., to be 11.07 Gm. for each 70 Kg. of body weight. This amount of nitrogen is equivalent to 76.1 Gm. of protein, after adding 10 per cent for that lost in the feces. The New Orleans investigators concluded that their observations furnish evidence in favor of the view that the increase of temperature is accompanied by a decrease in protein intake, and that, apart from the variations due to seasonal changes, the inhabitants of the semitropical portions of this country probably consume an amount of protein considerably below the quantity reported as the average intake for the nation.

If these contentions were warranted, one should find evidence of it in a survey of comparable persons—medical students in this instance—in different parts of the country. Beard [7] has recently completed such a study of 400 twenty-four hour urine analyses of male medical students during the past six years in Cleveland during the month of January when the mean temperatures ranged from 24 to 30 F. (— 1 to — 4.4 C.). The elimination of nitrogen averaged 11.1 Gm., which corresponds to 76.7 Gm. of protein for each 70 Kg. of body weight, after the addition of 10 per cent of protein lost in the feces. Hence the protein intake of students in the North and South, for each 70 Kg. of body weight, is practically the same. Temperatures between — 4.4 and + 23 C. have no effect on protein intake. This does not mean that the dietary habits of the Eskimos and the tropical negroes are the same, but rather that climatic temperature is not the main factor in directing their protein intake. Availability of certain foods as determined by geographic and economic conditions doubtless is of far greater moment in the selection of the diet. It is particularly worthy of note, however, that the healthy youth of the country, as represented by the average student of medicine, has today become adjusted to a protein consumption not exceeding 80 Gm. daily. It would be interesting to learn what has brought this "standard" about.

4. Pearl, Raymond: The Nation's Food, Philadelphia, W. B. Saunders Company, 1920.
5. Myers, V. C.: Barker's Endocrinology and Metabolism **3**: 487, 1922.
6. Denis, W., and Borgstrom, P.: A Study of the Effect of Temperature on Protein Intake, J. Biol. Chem. **61**: 109 (Aug.) 1924.
7. Beard, H. H.: The Protein Intake of Medical Students, Am. J. Physiol. **82**: 577 (Nov.) 1927.

INSULIN REACTIONS AND HYPOGLYCEMIA

Since the earliest publications on the action of the pancreatic hormone, insulin, in the organism it has been recognized that overdosage is likely to be attended with distressing symptoms that may even proceed to grave consequences. The manifestations of "insulin shock" have become familiar to clinicians. The more usual features include general muscular weakness, momentary mental confusion, loss of memory, a sense of restlessness, profuse sweating, pallor or flushing of the face, and sometimes a sensation of hunger. The demonstrated accompaniment of such conditions is a reduced sugar content of the blood. At low blood sugar levels the condition becomes serious. The hypoglycemic symptoms are more apt to be sudden in onset, severe and prolonged in persons who are markedly undernourished. Relief comes promptly after the administration of food, particularly readily available carbohydrates. The cause of the reactions just described cannot always be readily explained, however, by the observed sugar content of the blood.[1] In other words, it has not always been easy to reconcile a severe insulin reaction with the concomitant relatively high blood sugar content.

In 1925, Foshay [2] reported that insulin causes a reduction in the quantity of dextrose in the dog's erythrocytes disproportionate to the reduction in the whole blood, and that it causes the same response in human blood. Moreover, it was shown that insulin reactions can occur without hypoglycemia both in man and in the dog, and that such reactions in the dog begin simultaneously with the reduction of the corpuscular dextrose. This offered a probable explanation of failures to find the blood sugar low in the majority of cases of insulin reactions in which only the whole blood sugar was estimated. These facts led Foshay to conclude that the train of symptoms and signs that follow administration of large doses of insulin, and at least the early subjective and objective phenomena of insulin overdosage, are not associated with a hypoglycemia per se but rather with a cytoglycopenia—a status of dextrose impoverishment within the cell. This is of importance in the treatment of diabetes, especially when large doses of insulin are used. It is particularly significant in the case of patients in coma, in whom many of the classic symptoms of insulin overdosage may be overlooked and the sugar analysis of the whole blood may not reveal the seriousness of the sugar depletion. From further observations at the Lakeside Hospital in Cleveland, Foshay [3] has arrived at substantiating conclusions. He reiterates that the occurrence of insulin reactions bears no direct fundamental relation to the whole blood sugar concentration.

1. Compare Joslin, E. P.: Treatment of Diabetes Mellitus, Philadelphia, Lea & Febiger, 1923, p. 73.
2. Foshay, Lee: Observations upon the Action of Insulin on the Blood, with Special Reference to the Cause of the Condition Known as Hypoglycemia, Am. J. Physiol. **73**: 470 (July) 1925.
3. Foshay, Lee: Insulin Reactions, Arch. Int. Med. **40**: 661 (Nov.) 1927.

The fundamental cause of the symptoms and signs of insulin reactions is believed to be a lack of available dextrose throughout the tissue cells of the body. Foshay also concludes that the corpuscular dextrose concentration may be accepted as an index of the dextrose concentration in the cells of the fixed tissues. The actual determination of the content of dextrose in the corpuscles is within the province of relatively easy biochemical technic. It may prove to be of great value for patients whose condition obscures the usual symptoms and physical signs of insulin overdosage.

SOME SO-CALLED CARDIAC STIMULANTS

Practical therapeutics, so far as it involves the use of drugs, would doubtless reap considerable benefit through a better delineation of the actions of many substances that have a reputation of being "more or less" potent in disease. The category of useful drugs might thus become enhanced; more probably, the list of useless drugs would become considerably extended. These comments must not be interpreted as disparagement of empiric experience in drug therapy. Pharmacology is still too far from deserving to be regarded in every respect as an exact science to warrant the elimination of all reputed therapeutic agents for the function of which it cannot provide a precise explanation. On the other hand, there is nothing inherently "sacred" about traditional procedures in the domain of medical treatment. The student of today may properly inquire now and then whether the popular drugs of yesteryear have always justified their vogue. This is particularly true in the case of substances having a reputed effect that may be measured or clearly demonstrated.

An illustration is afforded in the case of some of the "cardiac tonics," notably camphor, strychnine and caffeine. The essentials of cardiac function can nowadays be examined with considerable precision on both man and the experimental animals. Drugs that are intended to be of value in the treatment of patients with acute and chronic circulatory failure ought to have a definite, measurable effect on pulse rate and blood pressure, and particularly on the output of the heart. As a recent writer has noted, the essential function of the heart is to pump blood, and before evaluating any drug as to its circulatory action, information of its effects on the cardiac output is essential.

Camphor has long been employed in the treatment of impending cardiac collapse on the assumption that it improves the pulse. It has been a drug reputed to be a circulatory and respiratory stimulant in cases of syncope and cardiac failure. The ineffectiveness of camphor for this purpose has, however, been proclaimed by several investigators, so that even the conservative textbook writers are at last reticent in recommending the drug. One cannot read the careful observations of Marvin and Soifer[1] of Yale University published a few years ago without concluding that the faith of a generation of physicians in this alleged circulatory "stimulant" has been blind. The reputation of strychnine in the treatment of patients with circulatory disorders is little better, when the conflicting evidence is critically considered.

And now Wilson, Harrison and Pilcher[2] of the Department of Medicine at Vanderbilt University challenge the drugs anew. The effects of camphor and of strychnine on the cardiac output of normal, unnarcotized dogs were studied. The doses used were comparable to those used in therapeutics. The effects of camphor were inconstant. The cardiac output and consumption of oxygen were usually not significantly altered, although decreases and increases sometimes occurred. The effects of strychnine varied according to the amount of the drug administered. On the basis of the experimental evidence it is dogmatically concluded that camphor has no value in the treatment of patients with circulatory disorders, and that the value of strychnine in such conditions is unproved. Wilson, Harrison and Pilcher, in denying the rational basis for the use of either drug add, further, that strychnine, like digitalis, may increase tonicity, but strychnine and digitalis have opposite effects on the normal cardiac output, and the action of digitalis is much more constant. The burden of proof for the advisability of the continued recommendation of the two once popular cardiac stimulants now rests with their proponents.

Current Comment

THE CORTICAL HORMONE OF THE SUPRARENALS

That the suprarenal glands are indispensable to life is generally conceded. Either they counteract or destroy substances detrimental to the organism that may arise in one way or another, or they supply one or more products that are essential to the functions of the body. The latter view, rather than the theory of a "detoxicating" action, has attained the dominant popularity of late and has stimulated anew the search for the indispensable suprarenal hormone. At present the preponderance of evidence favors the suprarenal cortex as the portion of the structure that is responsible for the genesis of the essential factor. Epinephrine, produced in the medullary substance of the glands, is thus excluded. In a recent issue,[3] reference was made to investigations of Rogoff and Stewart[4] at Cleveland, indicating that extracts of the suprarenal

1. Marvin, H. M., and Soifer, J. D.: The Value of Camphor-in-Oil as a Cardiac Stimulant, J. A. M. A. **83**: 94 (July 12) 1924.
2. Wilson, C. P.; Harrison, T. R., and Pilcher, Cobb: Action of Drugs on Cardiac Output: IV. Effects of Camphor and Strychnine on the Cardiac Output of Intact Unnarcotized Dogs, Arch. Int. Med. **40**: 605 (Nov.) 1927.
3. A Hormone of the Suprarenal Cortex, editorial, J. A. M. A. **89**: 1785 (Nov. 19) 1927.
4. Rogoff, J. M., and Stewart, G. N.: The Influence of Adrenal Extracts on the Survival Period of Adrenalectomized Dogs, Science **66**: 327 (Oct. 7) 1927.

cortex prolonged the life of animals deprived of their suprarenals. Confirmatory evidence has since been supplied by Hartman, MacArthur and Hartman [5] of the University of Buffalo. They have obtained a substance from the cortex of the suprarenals of the ox which prolongs the life of suprarenalectomized cats. Extracts of the glands are freed as much as possible from protein. The potent substance is then obtained by precipitation with salt. Epinephrine is removed by washing and therefore cannot be responsible for the beneficial effects observed. Of course such manipulations are inadequate to afford pure substances, but they pave the way to success. In an earlier review [3] it was pointed out that, in these days of the successful isolation of hormones, the suprarenal cortex also may soon disclose its potent constituent. Perhaps success is nearer at hand than was anticipated. At any rate the Buffalo physiologists have already coined a name for the cortical hormone. They propose to call it "cortin."

IF YOU FORGOT

In THE JOURNAL three weeks ago was a colored slip, a reminder that Fellowship and subscription dues for 1928 were payable. The reminder worked in a highly gratifying manner. Thousands of remittances have been received. Some have not yet paid. If you are in this group, remember that a few minutes of your time now will close the entire matter; otherwise it will be necessary to make out and send you a personal statement.

Association News

ANNUAL CONGRESS ON MEDICAL EDUCATION, LICENSURE AND HOSPITALS

Final Program of Meetings to Be Held in Chicago, Feb. 6-8, 1928

The next conference of the Council on Medical Education and Hospitals will be held in the Palmer House, Chicago, February 6-8. The program follows:

FIRST DAY, MONDAY, FEBRUARY 6

COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

MORNING SESSION, 9:30 O'CLOCK

Opening of the Conference by the Chairman
Arthur Dean Bevan, M.D., Professor of Surgery, Rush Medical College, Chicago.

Medical Education in Great Britain
Sir Norman Walker, M.D., Member, General Medical Council of Great Britain.

Discussion by
William S. Thayer, M.D., President-Elect of the American Medical Association, Baltimore.

An M.D. Degree Five Years After High School
Wilburt C. Davison, M.D., Dean, Duke University School of Medicine, Durham, N. C.

AFTERNOON SESSION, 2 O'CLOCK

SYMPOSIUM: MEDICAL RESEARCH IN THE GOVERNMENTAL MEDICAL DEPARTMENTS

(a) In the Army Medical School
Lieut. Col. Joseph F. Siler, Surgeon General's Office, Washington, D. C.

(b) In the Navy Medical School
Admiral E. R. Stitt, Surgeon General, United States Navy.

(c) In the Hygienic Laboratory
Surg. Gen. Hugh S. Cumming, United States Public Health Service.

The Revision of the Standard Nomenclature of Diseases and Pathologic Conditions, Injuries and Poisonings
William H. Davis, M.D., Chief Statistician for Vital Statistics, Department of Commerce, Washington, D. C.

SECOND DAY, TUESDAY, FEBRUARY 7

COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

MORNING SESSION, 9:30 O'CLOCK

Modern Preceptorships: The Value of Associate Teaching Centers in Clinical Teaching
Charles R. Bardeen, M.D., Dean, University of Wisconsin Medical School, Madison.

Discussion by
Karl Doege, M.D., President-Elect, Wisconsin State Medical Society, Marshfield

De-Departmentalizing of Clinical Teaching
J. S. Evans, M.D., Professor of Medicine, University of Wisconsin Medical School, Madison.

The Use of the Outpatient Department in Undergraduate Medical Instruction
Irving S. Cutter, M.D., Dean, Northwestern University Medical School, Chicago.

Investigative Work and Library Service in a Nonteaching Hospital
John E. Ransom, Superintendent, Toledo Hospital, Toledo, Ohio.

AFTERNOON SESSION, 2 O'CLOCK

SYMPOSIUM: AUTOPSIES IN MEDICAL SCHOOLS AND HOSPITALS

(a) The Educational Value of Autopsies
Harvey H. Bemis, M.D., Professor of Physical Diagnosis, Detroit College of Medicine and Surgery.

(b) The Relationship Between the Medical Staff and the Hospital Administration in the Use of Autopsies
Christopher G. Parnall, M.D., Medical Director, Rochester General Hospital, Rochester, N. Y.

(c) The Obtaining of Autopsies
Elexius T. Bell, M.D., Professor of Pathology, University of Minnesota Medical School, Minneapolis.

(d) Minimum Procedure Justly Referred to as an Autopsy
Frederick C. Smith, M.D., Marion, Ohio.

Discussion by
Howard T. Karsner, M.D., Chairman, Division of Medical Sciences, National Research Council, Washington, D. C.

THIRD DAY, WEDNESDAY, FEBRUARY 8

FEDERATION OF STATE MEDICAL BOARDS

MORNING SESSION, 9:30 O'CLOCK

Revision of Medical School Regulations as Related to Licensure
Fred C. Zapffe, M.D., Secretary, Association of American Medical Colleges, Chicago.

Duplication or Differentiation in Medical Supervision
Harold Rypins, M.D., Secretary, Board of Medical Examiners of the State of New York, Albany.

Medical Licensure and Registration in Great Britain
Sir Norman Walker, M.D., Member, General Medical Council of Great Britain.

Present Tendencies in Medical Practice
Herman G. Weiskotten, M.D., Dean, Syracuse University College of Medicine, Syracuse.

AFTERNOON SESSION, 2 O'CLOCK

Importance of Uniform Blanks for Premedical Qualifications
C. R. Compton, Chairman, Committee on Uniform Blanks, American Association of Collegiate Registrars, Wooster, Ohio.

Discussion by
Mr. Everett S. Elwood, director, National Board of Medical Examiners, Philadelphia.

Symposium: Basic Science Laws
(a) Charles B. Kelley, M.D., Secretary, New Jersey Board of Medical Examiners, Trenton.
(b) Royal C. Rodecker, M.D., President, Wisconsin Board of Medical Examiners, Holcombe.
(c) A. E. Comstock, M.D., Secretary, Minnesota Board of Medical Examiners, St. Paul.

Symposium: Annual Registration as an Enforcement Procedure
(a) Henry Albert, M.D., Commissioner, Iowa State Department of Health, Des Moines.
(b) Guy L. Connor, M.D., Secretary, Michigan Board of Registration in Medicine, Detroit.
(c) A. T. McCormack, M.D., Secretary, Kentucky State Board of Health, Louisville.

Symposium: Budget Problem of Medical Examining and Licensing Boards
(a) Roy B. Harrison, M.D., Secretary, Louisiana Board of Medical Examiners, New Orleans.
(b) Charles B. Pinkham, M.D., Secretary, California Board of Medical Examiners, Sacramento.
(c) T. J. Crowe, M.D., Secretary, Texas Board of Medical Examiners, Dallas.

Reports of Special Committees.

This meeting will be preceded on Tuesday evening by the annual dinner of the federation.

5. Hartman, F. A.; MacArthur, C. G., and Hartman, W. E.: A Substance Which Prolongs the Life of Adrenalectomized Cats, Proc. Soc. Exper. Biol. & Med. **25**: 69 (Oct.) 1927.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

"Metaphysician" Arrested.—Blanche Dickerson, 1214 Sixth Street, Santa Monica, arrested, November 7, on a charge of violating the medical practice act, was fined $100 following a plea of guilty; sentence was suspended for one year. An investigator for the state board of medical examiners states that an advertisement recently inserted in a local paper read in part "metaphysician, diet, electricity, massage, baths, rheuma., chronic cases."

Personal.—Dr. Fred R. Fairchild has been appointed health officer of Yolo County to succeed Dr. Alvy N. Crain.—— Dr. Richard H. Carter has been appointed city health officer at Parlier to succeed Dr. Carl G. Weltman.——Dr. Attillo S. Musante has resigned as chief of staff and member of the surgical division of St. Joseph's Hospital, San Francisco, to devote his time to private practice. Dr. Musante has been chief of staff since 1920, and has been a member of the staff for twenty years.

Medical School to Be Consolidated.—Following conferences between university authorities, the board of regents of the University of California has decided to bring all departments of the medical school together on Parnassus Heights, San Francisco. William W. Campbell, LL.D., president, says this means that those activities now conducted in departments on the Berkeley campus, such as pharmacology, biochemistry and bacteriology, will be transferred to San Francisco as rapidly as space on Parnassus Heights becomes available.

Popular Medical Lectures at Stanford.—Persons interested are cordially invited to attend the forty-sixth course of popular medical lectures which will be given by Stanford University School of Medicine at Lane Hall, San Francisco, on alternate Friday evenings, beginning January 13. The speakers and their subjects will be as follows:

Dr. James L. Whitney, "Psychoanalysis."
Dr. Russell Van Arsdale Lee, "Infantile Paralysis."
Dr. Edgar L. Gilcreest, "Cults, Quacks and Cures."
Dr. Emmet Rixford, "Chinese Medicine."
Dr. Frederick Eberson, "Protection Against Tuberculosis."
Dr. William Dock, "Prevention of Heart Disease."

Automobile Accidents and Poliomyelitis.—The state department of public health notes that in 1926 there were 1,554 deaths in California due to automobile accidents and that the number has increased since 1922, when it was 960; the rate per hundred thousand of population has increased in the same period from 26 to 33.9. The poliomyelitis epidemic had amounted to 1,189 cases up to the end of November, nearly all of which have been reported since the first of June. Up to October 1, there had been 140 deaths from this cause. The exact number left paralyzed is not known. For the week ending December 5, there were only ten cases of poliomyelitis reported in the state, indicating that the incidence has returned to normal. Never before have so many cases of this disease been reported in California during a single year.

Health Center at Pomona Dedicated.—The new health center at Pomona was dedicated with appropriate ceremonies, Dec. 9, 1927. It will serve the cities of Pomona, Claremont, La Verne, Glendora and San Dimas as a center for social welfare, an emergency hospital and a district health office. The city of Pomona donated the site. The building was erected and equipped by Los Angeles County; on the first floor are laboratories, pharmacy and offices, a small ward for men, another for women, a complete surgical department and a chest clinic. On the second floor are nurses' quarters, a kitchen, dining room and rest room. The dining room can be quickly changed into an assembly hall through a special arrangement of the partitions. There are quarters for county charities, the food and dairy division, and rooms for the heliotherapy and physical therapy departments. The staff has been organized so as to provide pediatric clinics, eye, ear, nose and throat clinics, a dental clinic and an orthopedic clinic. The Pomona Health Center is the third of a series to be built in the county by the health department; one will be constructed at Santa Monica and another at Belvedere. Dr. John L. Pomeroy, Los Angeles County health officer, who recently returned from a tour of health centers throughout the states, considers that there is no other center which embraces so many features of public health work. It is really a branch county hospital, and in addition contains all the offices of a public health organization.

CONNECTICUT

Personal.—Dr. Herbert R. Edwards, formerly medical field secretary of the National Tuberculosis Association, has been appointed director of the bureau of tuberculosis of the New Haven Department of Health.——Dr. Broadstreet Henry Mason has been appointed superintendent of the Waterbury Hospital, Waterbury.——Dr. Arthur D. Marsh has been appointed health officer of Hampton to fill the unexpired term of Dr. Erel L. Guidone.

Public Water Supplies.—Connecticut has 115 public water supplies, eighty of which are entirely from surface sources, and seven partially from such sources. Many of the water sheds tributary to these bodies of water contain roads and barns, and are therefore subject to possible pollution. The state department of health, through its bureau of sanitary engineering, inspects all these water sheds every year if possible and at least every two years, making a careful survey of the sewage disposal conditions and in many cases issuing orders and recommendations on the ground, while reports of the inspection are forwarded to the water officials with a request that they follow up the recommendations made; thirty-nine public water supplies employ chlorination, this being unnecessary in every case as none of the public water supplies of Connecticut are subject to gross pollution. However, about 75 per cent of the population of the state is estimated to be supplied by chlorinated water. The bureau of laboratories of the state department of health samples and analyzes each public water supply at regular intervals of from one to three months, and these reports are sent to the bureau of sanitary engineering, which makes such investigations as seem necessary by the analysis. Much concern is paid to the possibilities of pollution by "cross connections" with auxiliary water supplies for industrial purposes, and regulations prohibit any cross connection, except that temporarily double checked valves of an approved type are permitted when installed in water-tight pits with indicator gate valves, gages and drip cocks for testing. There are 162 such double checked valve installations in the state, and they are tested by the department about every two months. Plans for new sources of water supply or new water treatment plants are submitted to the state department of health for approval, and as a result the department has been able to be of considerable assistance to local physicians in this work.

DISTRICT OF COLUMBIA

Personal.—Carl W. Larson, Ph.D., chief of the U. S. Bureau of Dairy Industry since 1924, has resigned to accept the position of managing director of the National Dairy Council; Dr. Larson entered the department of agriculture in 1917, and was chief of the dairy division from 1921 to 1924.

Nine Indicted in Diploma Mill Probe.—Eighteen overt acts in furtherance of an alleged conspiracy to violate the embezzlement statute of the District of Columbia are set forth in an indictment returned by the grand jury, Dec. 22, 1927, against several alleged chiropractors of New York and against Gilbert Patton Brown, Ethel G. Wood and Edwin B. Henderson, Washington, who are alleged to have diverted to their own use funds obtained from the incorporation of fake institutions of learning. Among the schools mentioned in the overt acts are:

Columbia Institute of Chiropractic; National Health Institute; Washington School of Massage and Physiotherapy; Southern Nature Cure Sanatorium; Universal Occult College; Central Chiropractic College; Columbia Health Institute; United States Naturopathic Institution; National University of Therapeutics; Universal College of Science, and the Columbian Institute of Physiotherapy.

Bill to Prevent Diploma Mills.—Representative Gibson has introduced a bill in the House of Representatives which would prohibit any institution in the District of Columbia from conferring any degree except by license from the board of education. The board of education would be prohibited from granting any such license until it had established evidence on four points: (1) that the trustees or directors of the institution are persons of good repute and qualified to conduct an institution of learning; (2) that a degree shall be granted only after such a period of residence and quantity of work as is usually required by reputable institutions; (3) that applicants for degrees possess the usual high school qualification, and (4) that the faculty is of reasonable number and properly qualified, and that the school have suitable laboratories, class rooms and library equipment.

FLORIDA

Superintendent Resigns.—Dr. James B. Griffin, for more than three years superintendent of the Flagler Hospital, St. Augustine, has resigned, effective, January 10, and will return to private practice in that city.

Personal.—Dr. Clyde C. Bohannon, Daytona Beach, has been elected chief of staff of the new Halifax District Public Hospital, which will open early in 1928.——Dr. James Q. Folmor has been appointed superintendent of the state hospital, Chattahoochee.——Dr. Donald S. Fraser has resigned as field medical officer for the state board of health in the district west of the Apalachicola River.

Society News.—Dr. Arthur H. Weiland, Miami, addressed the Palm Beach Academy of Medicine, Dec. 14, 1927, at which meeting the local dental society was entertained.——The Palm Beach County Medical Society voted, Dec. 12, 1927, to oppose the establishment at present by means of a special bond issue of a county hospital; previously the society had agreed to endorse an enabling act with the understanding that the hospital would not be proposed within two years.

ILLINOIS

Personal.—Dr. Sam A. Thompson, Mount Vernon, was elected president of the Association of Surgeons of the Chicago and Eastern Illinois Railroad at a meeting in Chicago in December.——Dr. Clayton E. Woodward has been named president of the staff of the Decatur and Macon County Hospital, Decatur, for the ensuing year.——About 100 physicians of Peoria and surrounding cities gave a dinner, recently, in honor of the sixtieth birthday of Dr. Clifford U. Collins, Peoria.

Suicide and Murder in Illinois.—Suicide accounted for 1,067 deaths in Illinois during 1926; murder for 751 and senility for 415. The mortality rate for homicide has increased 60 per cent in the last ten years while the rate from external violence in general has increased nearly 10 per cent. The state health commissioner, Dr. Isaac D. Rawlings, Springfield, says that wilful or accidental self-destruction and murder constitute greater hazards to life than anything else except heart disease, cancer and nephritis, and that they are increasing at a rate that challenges public concern. The risk of violent death is widely distributed throughout the state, and is not confined to either city or rural territory. Of the 7,456 fatalities in 1926 due to external violence, 4,887 occurred in municipalities with 2,500 or more population, while 2,569 occurred in smaller places and in the country. Chicago fared better, Dr. Rawlings said, than some downstate cities. Joliet, for example, had a mortality rate of 173.1 per hundred thousand of population from accidents, compared with 107.6 in Chicago. The homicide rate in Joliet, however, was only 7.3, compared with 16.7 in Chicago and 10.4 for the state.

Chicago

Member Expelled for Advertising.—The council of the Chicago Medical Society at a meeting, Dec. 13, 1927, voted to expel from membership in the society Dr. Carl F. Klaus on a charge of unethical advertising owing to his connection with the "Dr. Klaus Rheumatic Prescription."

Society News.—The Chicago Surgical Society held its clinical meeting, January 6, at the Presbyterian Hospital, and the scientific program at the American College of Surgeons in the evening; among others, Dr. Arthur Dean Bevan spoke on "Surgery of the Spleen," and Dr. Edmund Andrews on "Newer Aspects of Liver Disease."——Dr. Irving S. Cutter, dean, Northwestern University Medical School, will be the principal speaker at the dinner given by the Northwest Branch of the Chicago Medical Society and the Physicians' Fellowship Club, at the Logan Square Masonic Temple, January 13, instead of Glenn Frank, LL.D., president of the University of Wisconsin, as was previously announced. The toastmaster will be Dr. Morris Fishbein, editor of THE JOURNAL.

Amante Rongetti Jailed.—Dr. Amante Rongetti was held responsible by a coroner's jury, Dec. 24, 1927, for the death of Miss Loretta J. Enders and her new-born child, who were patients at the Ashland Boulevard Hospital of which Dr. Rongetti is the proprietor. A former superintendent of nurses is said to have testified that Rongetti performed an illegal operation on this mother about three days previous to her death. Following an inspection by representatives of the city health department, the hospital was ordered closed and a physician assigned to take charge of the patients there. Rongetti was ordered held to the grand jury and placed in the county jail, where it appears that he will remain until after the grand jury investigation, as he was refused bail at a hearing before Judge Eller. About a year ago, in connection with the death of a 5 year old boy at the Ashland Boulevard Hospital, it was reported that an unlicensed practitioner had been appointed a member of the staff.

Quality of City Water Depends on Wind.—Thousands of citizens of Chicago complained during the last week of the old year of the unfitness of the water for drinking and cooking purposes. The situation prevailed on the south side of the city, and as far north as Wilson Avenue. It was brought about by south winds which drove water containing waste from the industrial center at the lower end of the lake north to the pumping stations of Chicago. A large supply of chlorine introduced at the pumping stations to overcome danger of pollution intensified the disagreeable taste and odor. The mayor appointed a commission comprising the health commissioner, the commissioner of public works and the corporation counsel to investigate and recommend a permanent solution of the industrial waste situation in relation to the city water supply. It was found, it is reported, that the pollution was caused largely by phenol, an industrial waste of the coke factories at the south end of the lake.

Diphtheria More Prevalent.—The health commissioner of Chicago, Dr. Arnold H. Kegel, stated that for the first eleven months of 1927, 50 per cent more cases of diphtheria have been reported in Chicago than during the whole of 1926 and nearly twice as many deaths. The number of cases reported was 3,574, and the number of deaths, 374. Reports from practicing physicians and from the municipal contagious disease hospital call attention to the unusually malignant diphtheria which prevails. Toxic cases seen early and given what is ordinarily considered an adequate dosage of antitoxin often have failed to respond to treatment. There had not been any marked outbreaks during the year in any particular group of persons, and no evidence of any one factor of distribution, but rather, the commissioner says, an increased dissemination of the disease throughout the city. He urges all physicians to exercise increased vigilance and to give a curative dose of antitoxin when diphtheria is suspected, not waiting for a culture to confirm the diagnosis. Toxin-antitoxin will be furnished without charge to all physicians through the cooperation of the state health department; the children whose parents cannot pay a family physician will be immunized by the city health department in the first grade and kindergarten of all schools, and preschool children will be immunized on Saturday mornings at thirty infant welfare stations throughout the city.

Personal.—Dr. Herman N. Bundesen, formerly commissioner of health, has accepted the positions of director of health of the Chicago Sanitary District, and health editor of the Chicago *Daily News*.——Mr. Robert O. Jones, for five years executive secretary of the Public Health League of Washington, resigned, November 25, to become publicity manager in Chicago of the Gorgas Memorial Institute.——Dr. Casey A. Wood has been elected to life membership in the American Academy of Ophthalmology and Otolaryngology.——Dr. G. Henry Mundt addressed members of the Christian County Medical Society at Taylorville, November 22, on "Your State Medical Society"; practically every town in the county was represented at this meeting. Dr. Mundt addressed the St. Clair County Medical Society, Dec. 1, 1927, at Belleville, on "Some of the Fundamentals of Otolaryngology" and since June 3, 1927, has made thirteen other addresses before Illinois medical societies.——Dr. Maurice A. Roe, acting assistant surgeon, U. S. Public Health Service, has been relieved from duty at Chicago and assigned to duty at marine hospital number 19, San Francisco.——The following physicians have been appointed coroner's physicians by Coroner Oscar Wolff: Drs. Robert A. Smith, William A. Lynott, Michael J. Badzmierowski and Walter Handmacher.——Dr. Frank Billings has been elected president of the McCormick Institute for Infectious Diseases, and Dr. James B. Herrick, vice president. Dr. Ludvig Hektoen is secretary; during the coming year, the principal subject for research at the institute will be infantile paralysis.

INDIANA

Hospital News.—The board of trustees of the Methodist Episcopal hospitals of Indiana has authorized the construction of a sixteen story addition to the Methodist Hospital of Indianapolis at Capitol Avenue and Sixteenth Street.

Personal.—Dr. Ross A. Cooper, Carmel, was appointed by the state commander of the American Legion as chairman of

the state rehabilitation department of the legion for 1928. ——Dr. Lillian B. Mueller, Indianapolis, has been elected national president of the Nu Sigma Phi, a medical sorority.

Chiropractor Indicted on Charge of Manslaughter.—The Howard County grand jury, Dec. 20, 1927, returned an indictment, it is reported, charging Chiropractor H. A. Richey of Kokomo with involuntary manslaughter in connection with the death of Mrs. Dorothy M. Moore, Nov. 28, 1927. There are said to be two counts in the indictment, one charging that the chiropractor "pushed and twisted" the neck of his patient in a rough and unskilful manner, thus committing an assault and battery which resulted in death; the other count charges the chiropractor with practicing without a license and with unskilful treatment which resulted in the death (THE JOURNAL, Dec. 17, 1927).

Society News.—Dr. William R. Davidson, Evansville, was reelected chairman of the council of the Indiana State Medical Association for 1928 at the annual meeting, Dec. 16, 1927, at the Indianapolis Athletic Club; Drs. Augustus L. Marshall and David Ross were reelected members of the executive committee.——Dr. George W. Crile, Cleveland, addressed the Indianapolis Medical Society, Dec. 13, 1927, on "Infections," and Prof. Erich Frank, Breslau, Germany, addressed the society in December on "The Toxic Thyroid." Drs. Karl M. Koons and Charles P. Emerson addressed the society, Dec. 20, 1927, on "Goiter from the Standpoint of the Surgeon" and "Rhinology and Internal Medicine," respectively.—— Dr. William Mithoefer, Cincinnati, addressed the Muncie Academy of Medicine, Nov. 11, 1927, on "Recent Views Concerning the Tonsils."——Members of the Fort Wayne County Medical Society celebrated the seventieth birthday of Dr. Calvin H. English, Nov. 8, 1927.

IOWA

Annual Conference of County Secretaries.—The second annual conference of officers and secretaries of the county societies of the Iowa State Medical Society will meet at Des Moines, February 12. Among others, Dr. Olin West, Secretary and General Manager of the American Medical Association, Chicago, will speak; the board of trustees of the state society will be represented on the program by Dr. Vernon L. Treynor, Council Bluffs; the council by Dr. Samuel T. Gray, Albia, and the secretaries by Drs. Corwin S. Cornell, Knoxville, and Mark C. Jones, Boone.

LOUISIANA

Dinner in Honor of Dr. Matas.—The Orleans Parish Medical Society sponsored a homecoming dinner at the Chess, Checkers and Whist Club, New Orleans, Dec. 20, 1927, in honor of Dr. Rudolph Matas, emeritus professor of surgery, Tulane University of Louisiana School of Medicine, New Orleans, which was attended by about 200 physicians. It was announced at the dinner by the dean of the medical school, Dr. Charles C. Bass, that the Tulane board had drafted the guest of honor to continue to serve in the medical school as professor emeritus. Dr. Paul J. Gelpi, Jr., was toastmaster; the speakers were Drs. Albert E. Fossier, whose subject was "Influence of Dr. Matas on the Medical Profession in New Orleans"; Dr. Charles L. Chassaignac, "His Early Career," and Dr. Bass, "His Professional Career." Dr. Matas' talk dealt with the history of the Orleans Parish Medical Society and the control of epidemics in New Orleans in 1905.

MAINE

Society News.—For the first time, the Kennebec County Medical Society invited the public to its meeting, Nov. 15, 1927; the subject discussed was the importance of early recognition and prevention of deafness and of educational facilities for the hard of hearing; a demonstration of the audiometer was given by Dr. Roy H. Gilpatrick, Boston. The society in the afternoon held a clinical session at which cases were presented by local physicians and a paper read by Dr. Leon D. Herring, Winthrop, on "Blood Stream Infections."——The Penobscot County Medical Society conducted a two-day clinic at the Eastern Maine General Hospital, Bangor, Dec. 12-13, 1927, which was attended by seventy-four physicians; among the speakers were Dr. Herbert F. Twitchell, Portland, president of the state medical society, and Drs. Channing Frothingham, Frederic J. Cotton, Lyman G. Richards and John Homans, all of Boston.——Dr. Torr W. Harmer, Boston, addressed the Androscoggin County Medical Society, Lewiston, recently, on "Fractures and Surgical Management," illustrated with lantern slides.

MICHIGAN

Special Diphtheria Prevention Clinics.—The department of health of Detroit maintained eight special clinics for the administration of toxin-antitoxin and the giving of Schick tests for the eight weeks ending Dec. 17, 1927; in addition, diphtheria prevention work was carried on in about 103 schools. Preschool children were cared for at these clinics as well as school children. Although the special clinics completed their work, the traveling school clinics will be continued. The response to this effort to prevent diphtheria was gratifying. A total of 31,004 children have commenced the diphtheria immunization and 28,612 have had Schick tests made. The department of health was disappointed, however, with two features of the campaign: (1) the proportion of preschool children was not as great as desired, and (2) not as many parents took their children to their private physicians as in other years. Detroit's preschool population amounts to 152,800, and of this group 37.2 per cent have been given toxin-antitoxin. Detroit's school population (6 to 15 years of age) is about 234,000, and of this group about 51 per cent have been given toxin-antitoxin either this fall or in previous years.

MISSISSIPPI

Society News.—Among the speakers at the South Mississippi Medical Society meeting in Hattiesburg in December was Dr. Charles J. Bloom, New Orleans, whose subject was "Pellagra"; Dr. Hugh L. McKinnon, Hattiesburg, was elected president at this meeting.—— Dr. Charles A. McWilliams, Gulfport, addressed the November meeting of the Jackson County Medical Society on "Infection of the Paranasal Sinuses"; Dr. Jacob N. Rape, Moss Point, was elected president for 1928.

Flooded Counties Now Have Health Units.—Each of the counties affected by the Mississippi flood last spring have since organized a full-time county health department with the assistance of the U. S. Public Health Service, the Rockefeller Foundation and the state. These county health department programs included general sanitation, inspection of dairies, physical inspection of school children, control of communicable diseases, the organization of infant welfare, preschool and prenatal clinics, the supervision of midwives, and the conducting of general educational campaigns for the promotion of public health. There was a decrease of 37 per cent in typhoid in the flooded area in the six months ending Sept. 30, 1927, as compared with the same period in the previous year. Pellagra, however, has increased 109 per cent in this area; dysentery, 41 per cent, and malaria, 25 per cent. The increase in malaria, however, is no greater than in the other counties of the state which were not flooded. The state board of health has published a report on its activities in the flooded counties indicating that the population affected amounted to about 131,000 persons. The board cared for seven municipal water supplies, and disinfected more than 20,000 wells.

NEW JERSEY

Diphtheria More Prevalent.—The death rate in New Jersey for diphtheria for 1927 is expected to be greater than for any year since 1921. There had been 5,573 cases reported to the state department of health, and 304 deaths up to October 30. Considerable progress had been made in arresting the disease in New Jersey until this fall. Physicians are urged by the state health department to advise parents to have their children immunized, as in the group up to 15 years of age 87.5 per cent of the cases and 96 per cent of the deaths have been reported.

NEW MEXICO

Society News.—Dr. Homer A. Stroup, Artesia, was elected president for 1928 of the Pecos Valley Medical Association at its annual meeting at Clovis, Dec. 12, 1927; Dr. Charles F. Beeson, Roswell, was reelected secretary. The next meeting will be at Roswell.

Dr. Gaines' License Revoked.—The New Mexico Board of Medical Examiners revoked the license to practice of Dr. Joseph T. Gaines, Denver, at its October meeting, following a hearing on a charge of unprofessional conduct at which Dr. Gaines was represented by his attorney. The complaint filed with the board was that of advertising in newspapers throughout the state; in these advertisements it was stated that Dr. Gaines would visit towns on a certain date and that he had to his credit "wonderful results in diseases of the stomach, liver, bowels, blood, skin, nerves, heart, kid-

neys, bladder, bed-wetting, catarrh, weak lungs, rheumatism, sciatica, leg ulcers and rectal ailments." Dr. Gaines obtained a license in New Mexico in 1908; these advertisements apparently did not appear in New Mexico newspapers until January, 1927. His attorney has filed in the district court at Santa Fe a writ of certiorari to contest the constitutionality of the section of the medical law under which the license was revoked.

NEW YORK

What to Do with a Health Demonstration.—At a meeting in the office of the mayor of Syracuse, Dec. 21, 1927, it was agreed to request the directors of the Milbank Memorial Fund, New York, to come to Syracuse to determine what is to become of the health demonstration in Syracuse and future methods of financing it. This demonstration has been financed in part by the Milbank Fund and in part by the city for five years. The city health department budget is said to have increased since 1923 from about $88,000 to almost $252,000. According to the Syracuse *Journal,* Dr. Herman G. Weiskotten, who is dean and professor of pathology of the College of Medicine of Syracuse University, desires to relinquish his duties as commissioner of health of Syracuse. The mayor believes that his continuance in office will reduce antagonism on the part of some physicians of the city to the health demonstration.

Milbank Fund to Continue to Aid Health Demonstration.—Notwithstanding the opposition of the Cattaraugus County Medical Society, the Milbank Memorial Fund of New York will continue its participation in the Cattaraugus County Health Demonstration and has appropriated about $87,000 toward the expenses of the health program for the new year. According to the committee on tuberculosis and public health of the State Charities' Aid Association, the county board of health and thirty-seven other public bodies and civic and welfare organizations in the county requested the Milbank Fund to continue to aid the demonstration. The State Charities' Aid Association recommended continuation, and the board of technical experts of the Milbank Memorial Fund approved. There is one doctor of medicine, Charles M. Cauldwell, on the board of directors of the fund, and there are five on the board of technical experts of the fund; these are Drs. William H. Welch, professor of the history of medicine, Johns Hopkins University School of Hygiene and Public Health, Baltimore; Livingston Farrand, president of Cornell University, Ithaca, N. Y.; James A. Miller, president, New York Health and Tuberculosis Association; Linsly R. Williams, managing director, New York Academy of Medicine, and Matthias Nicoll, Jr., state commissioner of health.

Society News.—After twenty-three years of existence, the Poughkeepsie Academy of Medicine became a part of the Putnam-Dutchess County Medical Society, recently, and ceased to be a separate organization.——The annual meeting of the Rensselaer County Medical Society was held at Troy, Dec. 14, 1927; among the speakers was Dr. Paul D. White, Boston, who spoke on "Cardiovascular Observations," and Dr. Fenwick Beekman, New York, "Diagnosis of Acute Abdominal Lesions During Childhood." Dr. John J. Rainey, Troy, was elected president of the society for the ensuing year.——Dr. George G. Ward, Jr., addressed the Queens County Medical Society, Jamaica, L. I., recently on "Gonorrhea in Women."——Dr. Charles H. Goodrich was elected president of the Medical Society of the County of Kings at the annual meeting, Dec. 20, 1927.——Dr. Hans Zinsser, professor of bacteriology and immunology, Medical School of Harvard University, Boston, addressed the New York Academy of Medicine, January 5, on the significance of bacterial allergy in infectious diseases. The tenth lecture of the practical series of lectures will be given at the academy, January 13, 4 p. m., by Dr. William H. Park on "Diphtheria, Measles and Scarlet Fever Control."——Dr. John H. Garlock, Jr., addressed the Orange County Medical Society, Middletown, Dec. 15, 1927, on "Treatment of Fractures."

New York City

Physician Changes Name.—Dr. Israel Shmelkin, 911 East One Hundred and Seventy-Sixth Street, announces that by authority of the supreme court his name has been changed to Irving I. Shellin.

Society News.—Dr. Adolph Rostenberg gave a lantern slide demonstration on oral syphilis before the Bronx County Medical Society, December 21.——Dr. Jacob L. Wollheim has been elected president of the Yorkville Medical Society for the ensuing year.——Dr. Oscar L. A. Levin addressed the Rockaway Medical Society, recently, on "Some Valuable Methods in the Treatment of the Common Facial Dermatoses."

Babies' Hospital Builds New Home.—Founded in 1887 exclusively for the care of infants, the Babies' Hospital of New York is now preparing to move for the second time into larger quarters and to become a part of the medical center at Broadway and One Hundred and Sixty-Seventh Street. The building has just been started. It will be of twelve stories, constructed on one of the highest points in Manhattan and adjoining the main group of buildings of the medical center on the southeast. Its work will be expanded to include children up to 12 years of age. It is the eleventh unit in the medical center to begin construction. The late Dr. Luther Emmett Holt was identified with the Babies' Hospital of New York during much of his professional career. It was an eight bed institution when first opened, with only a superintendent and one resident physician. At its present location, Fifty-Fifth Street and Lexington Avenue, there are seventy-three beds. The building under construction now will provide at least 160 beds and also house the Training School for Nursery Maids, a unique institution.

Personal.—Dr. Simon Flexner, director of the laboratories of the Rockefeller Institute for Medical Research, has been elected an honorary member of the Medical Society of Berlin, Germany.—— Dr. Alexander W. Jacobs has been appointed assistant physician at the New York City Cancer Institute.——Dr. David E. Hoag, clinical professor of neurology, University and Bellevue Hospital Medical College, completed a fifteen day period of active duty in the medical reserve corps, Governors Island, Dec. 25, 1927, where he made a neuropsychiatric study of the military prisoners.——Dr. Fred H. Albee has been elected president of the Pan American Medical Association for the ensuing year, and will soon begin a tour of the Latin American countries in which the association operates.—— Dr. Adolph G. G. De Sanctis has been elected president of the Association of Italian Physicians of America for 1928.——Dr. Louis Wender has been appointed medical director of the Hastings Hillside Hospital, a new hospital for mental and nervous diseases opened at Hastings-on-Hudson.——A memorial meeting for the late Dr. I. Morvay Rottenberg will be held at the New York Academy of Medicine, January 8, 8:15 p. m.——Col. Louis C. Trimble, superintendent, New York Post-Graduate Hospital, 305 East Twentieth Street, and his assistant, Col. Peter Murray, have resigned, effective, January 31.

NORTH CAROLINA

Epidemic of Measles.—One hundred and four cases of measles developed in Charlotte during the week ending December 11, which was many times the normal average number of new cases. There were forty new cases the previous week. This is said to be the first time in five years that Charlotte has had an epidemic of measles.

OREGON

Chinese Practitioner Fined.—C. Gee Woo, Portland, was fined $250 on each of two charges of practicing medicine without a license, Dec. 14, 1927. Mr. Woo, who pled guilty, is about the twelfth illegal practitioner to have been prosecuted during the present campaign.

Jubilee Meeting of Alumni.—The fifteenth annual meeting of the Alumni Association of the Medical School of the University of Oregon, to be held from January 12-13, is to be a jubilee meeting in honor of Dr. Simeon E. Josephi who was dean and a teacher in the medical school for many years. This will be a joint meeting also with the Portland Academy of Medicine. Clinics will be held at the Multnomah County Hospital the morning of the first day, and seven papers will be read in the afternoon at the Portland Hotel. In the evening at the Portland Woman's Club, Dr. Arthur L. Bloomfield, professor of medicine, Stanford University School of Medicine, San Francisco, will speak on the composition of the gastric juice and the mechanism of its secretion. Clinics will be held at the Shriners' Hospital the second day, and another series of seven papers will be read in the afternoon at the hotel. There is to be a banquet that evening and a business meeting to which the ladies are invited. The secretary of the alumni association is Dr. Walter W. Black, 253 Medical Arts Building, Portland.

PENNSYLVANIA

Hospital News.—The voters of Montgomery County have disapproved the expenditure for the erection of a county tuberculosis hospital at Norristown; the plans for the hospital have been abandoned.

University News.—The $45,000 gift of Irene Dupont to the University of Pennsylvania Graduate School of Medicine is

to be used mainly for research in the physicochemical conditions associated with the cancer state. This was announced by a committee of three faculty members under whose direction the work will be done.

Society News.—The Fayette County Medical Society conducted a clinic, Dec. 15, 1927, at the Uniontown Hospital which was attended by 140 physicians from several cities; seven cases were discussed in detail during the afternoon by Drs. John T. King, Jr., and Walter D. Hughson, both of Johns Hopkins University School of Medicine, Baltimore, who were in charge of the clinic; there was a banquet in the evening presided over by the president of the society, Dr. William J. Bailey, Connellsville. The principal speaker was Rev. John R. Ewers, Pittsburgh, whose subject was "The Preacher Looks at the Doctor."

Personal.—Dr. Joseph Sailer, Philadelphia, was elected president of the Association of Ex-Resident and Resident Physicians of the Philadelphia General Hospital at the forty-first annual dinner, Dec. 6, 1927, on which occasion Dr. Francis J. Dever, Bethlehem, was toastmaster.——Dr. Hobart A. Hare acted as toastmaster at the annual dinner of the College of Physicians of Philadelphia given under the Weir Mitchell Entertainment Fund, Dec. 12, 1927; about 400 fellows attended the dinner. The address was given by Owen J. Roberts, Esq. ——Dr. David W. Levy, Philadelphia, was elected president of the Medical Alumni Association of Medico-Chirurgical College at the annual banquet, Nov. 17, 1927. The association has subscribed a fund of about $8,500, the interest on which will be available to assist children of graduates of the college who take up the study of medicine.

Philadelphia

Hospital News.—Dr. Edward A. Schumann was the principal speaker at the laying of the cornerstone of the nurses' home and training school of Chestnut Hill Hospital, November 6.——The Roosevelt Hospital Memorial, named after the Roosevelt Hospital which went out of existence recently, was dedicated as the Samaritan Hospital, Broad and Ontario streets, Dec. 28, 1927. The assets of the Roosevelt Hospital went to the Samaritan Hospital and made possible the construction of an addition that will furnish opportunities for research work by medical students at Temple University.—— St. Luke's Hospital and the Children's Homeopathic Hospital have merged and will occupy new buildings at the latter location. The joint capacity will be about 350 beds, and neither hospital will lose its identity.——Mount Sinai Hospital has contracted for the construction of a 225 bed addition which will cost $1,250,000 and be ten stories high. The present structure is to be rearranged and the nonfireproof part replaced by a five story dispensary.——The Rush Hospital for Consumptives and Allied Diseases, Thirty-Third Street and Lancaster Avenue, recently opened its new women's ward, which was dedicated to the memory of the late Jules E. Mastbaum.

VIRGINIA

Personal.—Dr. Philip W. Boyd, Winchester, has been elected president of the Virginia State Board of Medical Examiners, succeeding the late Dr. Robert Glasgow of Lexington. Dr. Boyd has been a member of the board for many years, and for some time has been the vice president.

Dr. Wilson to Lecture.—Dr. Louis B. Wilson of the Mayo Clinic, Rochester, Minn., will be the founder's day speaker at the nineteenth session of the Medical College of Virginia, Richmond, January 20; on this occasion also the cornerstone will be laid for Cabaniss Hall, which will serve chiefly as the school of nursing. It will house 134 young women, and will cost about $200,000.

GENERAL

Dust in Air of Cities.—Reports of ventilation engineers at the sixth exposition of Power and Mechanical Engineers, New York, recently, indicated, according to the New York *Times*, that the air of cities contained dust particles per cubic foot as follows:

Cincinnati	16,770	Philadelphia	9,880
Pittsburgh	16,100	New York	9,760
Detroit	15,300	San Francisco	6,580
Chicago	14,300	Boston	5,360

Psychiatric Hospital Association.—The Central Psychiatric Hospital Association was formed during the annual meeting of the American Psychiatric Association at Cincinnati this year. It is composed of private sanatoriums for the care of nervous and mental diseases, and its purposes are to foster cooperation for their mutual benefit, to promote higher standards and to advance the scientific care and treatment for patients in their care. Dr. Thomas A. Ratliff, Cincinnati, was elected president, and Dr. Douglas A. Johnston, Cincinnati, secretary-treasurer. A committee met with the council in Chicago, Dec. 14, 1927, to formulate standards for hospitals of this type.

Official Report on Causes of Death—Heart Disease Leads.—The U. S. Department of Commerce announces that 1,285,927 deaths occurred in the registration area of the United States in 1926, representing a death rate of 12.2 per thousand of population, a slight increase over the rate for 1925. The principal increases in 1926 were from diseases of the heart, influenza, pneumonia, measles and whooping cough. The rate for heart diseases increased from 186 to 199 per hundred thousand of population, which was the highest rate listed. The second highest rate, 102.5, for a specific disease was for pneumonia (all forms). The rate for cancer was 94.9; for tuberculosis, 87.1; for cerebral hemorrhage and softening, 86.4; for accidental and unspecified external causes, 78.6, and for diabetes mellitus, 18.

National Board Examinations.—The Boston Subsidiary of the National Board of Medical Examiners will hold three examinations in part III during 1928, the first being January 24-27; heretofore, only two examinations in part III have been held annually by this subsidiary board. Three written examinations in parts I and II will be held by the National Board of Medical Examiners during 1928, February 15-17; June 13-15; September 12-14. Forty-four out of the fifty-one candidates who were examined in New York in June in part III were successful and will receive the certificate of the national board. The New Orleans Subsidiary examined four candidates in June, all of whom were successful. The secretary of the National Board of Medical Examiners is Dr. John S. Rodman, Medical Arts Building, Philadelphia.

Trend of Adoption of the Metric System.—The All-American Standards Council, 681 Market Street, San Francisco, announces that the Orient has definitely decided on the use of metric units, and that already Japan, Siberia, the Philippine Islands, Indo-China, the Dutch Indies, Siam, French Oceanica, Mexico, the Central American republics, Colombia, Ecuador, Bolivia, Peru and Chile are on the metric basis, and that China is making rapid strides toward adopting metric standards. A Pan Pacific Standardization Conference met recently in San Francisco and endorsed a bill to be introduced in the present Congress providing for gradual establishment of metric measures in merchandising throughout the United States. Speakers at the conference stated that all civilized nations except the United States and the British commonwealths are now using metric weights and measures.

Per Capita Food Consumption Declines.—Dietary habits have changed. According to the National Industrial Conference Board, Inc., New York, the per capita meat consumption in the United States was more than 10 per cent less in 1926 than it was in 1907. The consumption of wheat flour per capita decreased more than 20 per cent from 1899 to 1923, and that of cornmeal during the same period declined more than 75 per cent. The decline in food consumption, the board believes, is a by-product of the mechanization of the present day, which has reduced the amount of energy building food required and has tended to increase sedentary occupations. A further indication of the general mechanization of the present-day environment is the decline of nearly 25 per cent, or from 19,833,000 to 17,713,000, in the number of horses on the farms in the United States from 1910 to 1925. The number of horses used elsewhere in that period declined from 3,183,000 to 1,177,000.

United States Board of Alienists Proposed.—Mr. Black, New York, has introduced into the House of Representatives a bill to create the United States Board of Alienists, to be composed of twenty physicians of ten years' experience in mental diseases and to be appointed by the President for terms of five years, each member to receive a salary of $25,000 per annum. The board would be authorized to employ necessary clerical and professional help. It would diagnose and prescribe treatment for all mentally deranged veterans in the care of the United States, and all other veterans of this country who would submit their cases to the board. It would make a study of mental diseases and print a treatise on the subject with recommendations. The board would consult with nonmembers, and pay them reasonable fees for their services. It would recommend a code of ethics to govern the appearance of aliens as expert witnesses in litigation, and it would make an annual report to Congress. Mr. Black's bill would

appropriate the sum of $5,000,000 for the purpose of this act and it would take effect immediately.

Misbranded Cod Liver Oil Preparations.—An extensive survey was made during 1927 by the U. S. Department of Agriculture of cod liver extracts and of various products found in interstate commerce alleged to contain the vitamins of cod liver oil. A biologic examination of these products for the presence of vitamins A and D showed that almost all the extracts and concentrates examined were practically devoid of vitamin A, and that very few contained any material amount of vitamin D. Several of these articles, the department states, have been used extensively in the manufacture of so-called cod liver oil compound tablets and other preparations. Action is to be taken to remove from interstate commerce adulterated, deteriorated or otherwise illegal extracts of cod liver oil and of cod liver, and of preparations falsely alleged to contain the vitamins of cod liver oil. Statements regarding the therapeutic effects of these preparations should be limited to those that can be fully substantiated by the consensus of present-day medical opinion. The department of agriculture will continue to investigate this class of products with a view of removing from the market illegal preparations.

Society News.—At the annual meeting of the Western Surgical Association, Dec. 8-9, 1927, Omaha, Dr. Kellogg Speed, Chicago, was elected president; Drs. Eric P. Quain, Bismarck, N. D., and James Tate Mason, Seattle, vice presidents; Dr. Harry P. Ritchie, St. Paul, secretary, and Dr. Frank R. Teachenor, Kansas City, Mo., treasurer. The next meeting will be held in Chicago, December, 1928.——The American Academy of Ophthalmology and Otolaryngology has appropriated $500 to the army medical museum for the use of the committee on pathology, and $100 in support of the International Ophthalmological Congress.——Dr. Byron S. Price, New York, was elected president of the American Academy of Physiotherapy at the annual business meeting, Dec. 17, 1927; Drs. Arthur L. Brown, Winchester, Mass., and John S. Coulter, Chicago, vice presidents, and Dr. Thomas L. Smyth, Allentown, Pa., secretary.——At the fourth annual midwinter meeting of the American Psychoanalytic Society, New York, Dec. 27, 1927, the presidential address was delivered by Dr. William A. White, Washington, D. C., superintendent of St. Elizabeth's Hospital.——At the eighteenth annual meeting of the National Committee for Mental Hygiene, New York, Nov. 10, 1927, Dr. Charles P. Emerson, dean, Indiana University School of Medicine, Indianapolis, was elected president; Drs. Bernard Sachs, New York, and William L. Russell, White Plains, were among the vice presidents elected, and Dr. William H. Welch, Baltimore, continues as honorary president.

Study of Cancer by League of Nations.—The health committee of the League of Nations undertook in 1923 a study of the official figures of mortality from cancer in certain European countries, assisted by clinical and statistical experts. The results of the study relate chiefly to cancer of the breast and uterus. The commission found that even when they limited their study to these sites and dealt only with countries which for years have had well established and, in many ways, perfected means of certification of causes of death, sources of error still existed which seriously affected the comparison of death rates between one country and another, and even between parts of the same country. For example, there is uncertainty in the observance of the rule that cancer deaths should be referred in statistics to the primary site of the lesion. The commission believes that there is an urgent need for investigation in all countries to determine the degree to which certification by causes is unsatisfactory and how it may be improved. On account of defects in the data available, the commission's study to determine whether there was a relation between cancer mortality as to race, as changed by anthropometric characters, really showed only how much must yet be done before attempts to appraise racial elements in the prevalence of disease can be successfully undertaken. The commission's report, however, was not wholly of a negative character. Expert work was undertaken in each country concerned to ascertain the circumstances in which so many presumably preventable deaths from cancer were occurring. Observations were made of series of cases of cancer of the breast and uterus in selected hospitals and selected areas as well as of massed figures of the country as a whole. The conclusion was reached that when all national differences are allowed for, it is demonstrated everywhere that early operation is a far more successful measure than even the general body of the medical profession supposes, and that the frequency of resort to operation is deplorably low. The commission found in regard to the influence of fertility that a fertility below the normal for the particular nation is associated with increased liability to cancer of the breast, while cancer of the uterus is to be associated not so much with fertility itself or the number of pregnancies as with the occurrence of the first pregnancy. Stress is laid on the evidence that cancer of the cervix is connected with conditions of labor which are in some measure preventable by efficient management of the labor. The cooperation required in each country of clinicians, surgeons, health administrators and statisticians to carry on this investigation has been fruitful to the particular country itself. The commission urges that this kind of group or cooperative studies be extended to other countries as well as applied to all sites and varieties of cancer.

Government Services

Army Personals

Major Henry C. Bradford has been relieved from duty at Camp Meade, Maryland, and assigned to duty at Fort Screven, Georgia; Major Claude D. Holmes has been assigned to duty at Camp Meade, having been relieved from duty at Fort Sill, Oklahoma; Major Guthrie E. Scrutchfield has been relieved from duty at Fort Screven and assigned to duty at Fort Barancas, Florida.——Capt. Ralph Duffy, who recently completed a tour of duty in the Philippine Department, has been assigned to the Sixteenth Brigade with station at Washington, D. C.——Lieut. William O. French, Jr., resigned, effective December 10.——Major Arnold D. Tuttle is detailed as liaison officer between the war department and the American Red Cross, national headquarters, in addition to his other duties.——Capt. Robert C. Murphy has been relieved from duty at Fort Sam Houston, Texas, and assigned to duty at Fort Crockett.——Major Thomas E. Harwood, Jr., is relieved from duty with the eighty-first division, Knoxville, Tenn., and with the Organized Reserves of the Fourth Corps Area, effective, January 1, and ordered to Fort Sill, Okla., thus being removed from the detached officers' list.——Lieut. Col. Harold W. Jones has been assigned to the Mayo Foundation, Rochester, Minn., for six weeks to study surgery of the thyroid and upper abdominal tract.——Lieut. Merritt G. Ringer has resigned as an officer of the army.——Capt. Frank T. Chamberlin has been relieved from duty at Fort Humphreys, Virginia, effective about Jan. 15, 1928, and ordered to the Walter Reed General Hospital, Washington, D. C., for duty.——Capt. Robert J. Platt has been removed from the detached officers' list and ordered to Maxwell Field, Alabama, for duty about January 20.——Major Charles W. Riley has been relieved from duty at Fort Williams, Maine; he will sail from New York about January 30 for San Francisco and then proceed to Denver for duty at Fitzsimons General Hospital.——Capt. William D. Mueller has been assigned to the Letterman General Hospital, San Francisco, for duty, and Capt. George E. Hesner to the U. S. Disciplinary Barracks, Alcatraz, Calif.——Capt. Alfred Mordecai has been relieved from duty at the Walter Reed General Hospital, and will sail from New York, about March 7, 1928, for the Philippine Islands for duty.——Lieuts. Reuel E. Hewitt and Earle G. G. Standlee will sail from San Francisco, about March 28, for duty in the Philippine Islands.——Major Earl L. Parmenter and Capts. Hubert M. Nicholson and Samuel L. Thorpe, on completion of their present tour in the Philippine Islands, will be assigned to duty at Fort Sam Houston, Texas, the Walter Reed General Hospital, Washington, D. C., and Fort Lewis, Washington, respectively.——Lieut. William H. Craig has been relieved from duty at the William Beaumont General Hospital, El Paso, Texas, and will sail about April 24 from San Francisco for New York, from there proceeding to Washington, D. C., for duty at the Walter Reed General Hospital.——Capt. William C. Munly has been relieved from duty at the army dispensary, New York; he has been ordered to sail from that port for San Francisco about January 31 and to report to the Letterman General Hospital for duty.——The leave of absence granted Major Arthur P. Hitchens and his assignment to the army medical school, Washington, D. C., effective on completion of his present tour of foreign service, are revoked.——The assignment of Capt. Marvin C. Pentz to Plattsburg Barracks, New York, has been changed to Madison Barracks.——Capt. Theodore Bitterman, medical administrative corps, has been found incapacitated for active service on account of disability incident thereto, and his retirement has been announced.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Dec. 10, 1927.

Criminal Law and Insanity

The question of insanity as a defense for crime seems destined to be a perpetual bone of contention between the medical and the legal professions. The leading principle of the criminal law of England relating to insanity by a person accused of crime is to be found in the answers given in 1843 to the House of Lords by the judges in the McNaghten case, which laid down that for successful defense the accused must be proved to have at the time of committing the crime labored under a disease of mind which either prevented him from recognizing the nature of the act or from recognizing that the act was wrong. But alienists have long contended that an accused person may fail to satisfy both these tests and yet by reason of mental disease be suffering from an uncontrollable impulse which caused him to commit the crime and that this should be a defense. In 1922 this point arose in the notorious True case and a committee of well known lawyers presided over by Lord Justice Atkin was appointed to consider the subject. The council of the British Medical Association submitted evidence approving of the rules in the McNaghten case but adding that no act should be regarded as a crime if at the time the accused was prevented by defective mental power or by any disease affecting the mind from controlling his conduct, unless the absence of control was due to his own default. The committee so far agreed with the British Medical Association as to recommend (1) that a person was not responsible when the act was committed under an impulse which he was by mental disease deprived of power to resist, and (2) that in other respects the McNaghten rules should be maintained. The recommendation, however, has not been carried into effect.

The lord chief justice, Lord Hewart, has just delivered to the Medical Society of London the fifth David Lloyd Roberts Lecture on criminal law and insanity, in which he adopted uncompromisingly the lawyers' view, which refuses any modification of the McNaghten rules. Criticizing the report of the Atkin committee, the lord chief justice said that if it was accepted, it would be immaterial that the prisoner knew what he was about, or that he knew he was doing what was wrong. He might indeed be well aware of the one and the other. But he would still be excused from criminal responsibility if he committed the act under an impulse which he was by mental disease in substance deprived of any power to resist. This suggestion, whatever its merits might be, was not at all a product of the twentieth century. It was really the ancient and dangerous plea of the uncontrollable impulse, which in practice was so difficult to distinguish from the impulse that was not controlled. The doctrine involved two propositions. The first was that there were unfortunate persons who, though they knew what they were about, and also knew that they were doing wrong, were nevertheless impelled, by diseased and irresistible impulse, to commit an apparently criminal act. The second proposition was one of legislative morality or expediency—that these persons, by reason of their number or otherwise, were of such importance as to require or deserve a fundamental revision of the criminal law. If this unfortunate type existed the question remained whether, for that reason, it was just and necessary to entertain or to make a drastic alteration in the criminal law. If this was done, the objective tests for judge and jury would disappear. It would be of little use to explore the evidence in order to ascertain whether, in the particular case, the prisoner was perfectly well aware of what he was doing, or perfectly well aware that what he was doing was wrong. The crucial question would forthwith be whether he was acting under an irresistible impulse. And on what materials, and with what guidance, would the jury be called on to answer that question? Would there be any except the medical opinion, which the prisoner might be fortunate enough to be able to adduce in his favor, contradicted by the medical opinion which might be offered on the part of the prosecution? What were the true dimensions of the difficulty for which so far-reaching a solution was suggested? "It was established," the report said, "to our satisfaction that there are cases of mental disorder where the impulse to do a criminal act recurs with increasing force until it is, in fact, uncontrollable. Thus cases of mothers who have been seized with the impulse to cut the throats of or otherwise destroy their children to whom they are normally devoted are not uncommon. But already a special statute dealt with infanticide and offered a lenient alternative in cases of mental disturbance falling far short of insanity, where a mother not yet fully recovered from the effects of childbirth destroyed her newly born child.

The lord chief justice is a very lucid and able judge, but his criticism of the report of the Atkin committee is weak. He makes no attempt to controvert the view taken by alienists and adopted by the committee—that the McNaghten rules require the addition of "the uncontrollable impulse" as a defense. He even accepts it in the case of the recently delivered mother. His objection is that the jury would have to depend on medical opinion and that there might be a clash of expert evidence. But all this is possible in any case in which medical or other expert evidence is used and no one has had the temerity to suggest that as a reason for ignoring expert evidence.

Cancer Research

The twenty-fifth annual report of the Imperial Cancer Research, just issued, carries on the story of investigation which for a quarter of a century has been in progress. Unhappily, there is as yet no indication that the goal of the work is in sight. Dr. Murray, the director of the fund, deals at some length with the disputed question whether or not cancer is a solitary invader of the body, that is to say, whether or not two or more cancers can begin together and coexist. The evidence inclines him to the "solitary" view. This is a matter of some importance because, if a second cancer cannot easily grow, it is evidence that the body makes an attempt to rid itself of cancer, and hope is engendered of being able some day to make use of this natural healing power. Dr. Murray offers some observations on work which, he thinks, tends to confirm the researches of Dr. Gye. On the other hand, work conducted in another research center in London has tended to negative these researches.

A New Form of Museum

A new form of museum has been opened in London, the Home Office Industrial Museum, and was inspected by the king and queen. It may be explained that the home office is the department of government for administering the internal affairs of the country. An important part of its work is the enforcing of regulations for the safety of those engaged in industries. The establishment of a museum to demonstrate methods, arrangements and appliances for promoting the safety, health and welfare of industrial workers was decided on before the war, and the spacious building that houses the exhibition was ready for occupation in 1914. But during the war and for a considerable time afterward it was put to military use. At the entrance of the museum, statistics on a large board are exhibited and show that, in the twelve months of 1926, 806 workers were killed and 139,157 injured

by industrial accidents in British factories, at the docks, during building operations, and in miscellaneous occupations. By far the greater proportion of these accidents occurred in the factories. Various types of plant illustrate the best methods so far known for protecting the worker. The exhibits consist chiefly of machines and appliances as they would be installed in a factory, and they are supplemented by photographs which show a wider range of protective methods. Power is provided so that the machines can be shown in movement. The machinery installed includes transmission machinery, machine tools, power presses, textile machinery, baking machinery, rubber incorporating rolls, pottery processes, wood-working machinery, boot and shoe machinery, printing machinery, sewing machines, boilers and other steam plant, and laundry machinery. In the laundry section is a hydro-extractor, where clothes are packed into the cage of the machine, which is rotated at a speed of 1,650 revolutions a minute and the water extracted. For the avoidance of accidents, it is arranged that the cage cannot be set in motion until the cover is closed, and the cover cannot be lifted so long as the cage is in motion. A laundry plant with rollers, which have caused terrible injuries to hands and arms in the past, is now fitted with a rail which stops the machine if the hand is drawn too far forward. In the case of a pneumatic garment press, the risk of crushed fingers is avoided by a device that entails the use of both hands outside the danger zone in order to bring the press into operation.

The health section of the museum is devoted to the chief industrial diseases. There are photographs showing methods for the prevention of lead poisoning, silicosis, and dermatitis in various industries. Wax models illustrate the lesions produced. An anthrax section compares disinfected wools and untreated wools at various stages of the manufacturing process.

In the welfare section are shown types of work-seats designed to prevent fatigue and to facilitate work. There is an ambulance room, a rest room, a canteen equipped with special tables and cooking apparatus, and a welfare supervisor's room. First-aid boxes for factory use can be examined, and there is a particularly interesting display of protective clothing for use in foundries, aerated-water factories, the handling of plate-glass, and other purposes. Models illustrate the advantages of correct lighting. By an ingenious arrangement of roller blinds, one model shows the effect of wall material. Illumination is demonstrated to be reduced from 9.8 foot candles with white walls to 3.6 foot candles with dark blue walls. Another shows the effect of shadows on work and in lighting.

The museum includes not only the latest and best in its various departments but also plant and appliances which have been found to be dangerous. In the electrical section is defective apparatus which has been the cause of fatal accidents. Dangerously worn lifting gear, ropes and chains, and parts from boilers which have exploded convey much-needed warnings.

The Importance of Ventilation for Roentgenographers

At the Roentgen Society and Institute of Radiology, the safety of work with roentgen rays and radium, provided adequate precautions were taken, was insisted on by Dr. G. W. C. Kaye, superintendent of the physics department of the National Physical Laboratory. Ventilation he held to be of capital importance. He quoted the case of the senior lay roentgenographer of the new roentgen-ray department at the Royal Infirmary, Edinburgh. This operator began work in 1900 at 16 years of age. For years his average weight was 9 stone (57 Kg.) and his health indifferent except during his holidays. From August, 1914, till 1919 he was leading an open-air life on active service in the war, his weight increased to 11 stone 4 pounds (72 Kg.) and he enjoyed good health. Returning to his work in the old department, he gradually dropped back to an average weight of 9 stone. In August, 1926, he was transferred to the new, better ventilated roentgen-ray department, and by July 1927, his weight had returned to 11 stone 4 pounds, with improvement in his general health. Dr. Kaye explained the importance of ventilation on the ground that the gases generated by high tension roentgen-ray equipment were responsible for much of the lassitude, debility, headaches and anemia experienced by many workers. A tradition that died hard, even in London, was that roentgen-ray departments should be placed in basements.

Medical Secrecy

Dr. Graham Little, the dermatologist, who is member of parliament for London University, has introduced a medical practitioners' communications privilege bill which is intended to remove something like a deadlock which has resulted from a conflict between the regulations issued by a government department in 1916 and the law as interpreted by certain recent legal decisions. He said that in consequence of the recommendations of the royal commission on venereal diseases, which reported in 1916, a system of clinics for the treatment of those diseases was inaugurated throughout the country. Among the regulations issued for their conduct was an instruction to physicians and other persons concerned that all information with regard to the patients should be considered absolutely confidential. The success of the clinics rested on two factors—the cooperation of the physicians in charge, and the confidence of the patient treated. This cooperation and confidence had been won by the assurance of secrecy. But this security had been shattered by the decision of a judge by which a physician was ordered to disclose the character of the disease from which his patient was suffering, although he had acted under the explicit protection of the regulations framed by the ministry of health. Physicians thus found themselves forced to betray the trust of their patients. The bill provides complete protection given to privileged communications between physicians and their patients. Either the law must be amended or these regulations must be scrapped, said Dr. Little, but if they were scrapped it would prejudicially affect the work of the clinics and a large amount of medical effort. Leave to introduce the bill was unanimously given, and it was read a first time.

PARIS

(From Our Regular Correspondent)

Dec. 7, 1927.

The Abuse of Antisyphilitic Treatment in Heart Disease

A discussion held before the Société médicale des hôpitaux de Paris has cleared up the indications for antisyphilitic treatment in subjects affected with cardiovascular disease. Because of the predilection of syphilis for these organs, and because the serologic reactions in old cases of syphilis are often uncertain, many practitioners prescribe antisyphilitic treatment to nearly all heart patients. Dr. Donzelot protested against this. In a general way, the specialists present were agreed that, even when the syphilitic nature of the cardiac lesions is evident, antisyphilitic treatment is far from meeting all the exigencies of the situation; that it must be used prudently, and that often it must be deferred until the state of functioning has been improved by other methods.

May an Undue Allowance of Bread Exert Harmful Effects?

The French are commonly regarded as the biggest bread eaters in the world. Several recent articles tend to show that harmful effects may result from an undue allowance of

bread, and that there are cases in which rational therapeutics may derive great advantages from the suppression of excessive quantities of bread. In fact, Dr. Leven has begun a veritable crusade against the abuses of bread. According to Leven, the harmful effects of bread depend on such causes as considerable increase of the food mass (the weight of the bread commonly eaten represents a third of the ingested food), indigestibility of the bread eaten, due, in part, to inadequate mastication, and the resulting insufficient insalivation. The physician, furthermore, should not overlook the accession of water contained in food products. These contribute to the hydration of the organism, and a patient who does not drink may absorb through his food an undue or harmful quantity of liquids.

Is Acute Ataxia in Children a Sequel of Epidemic Encephalitis?

The *Gazette des hôpitaux*, which is the oldest medical journal published in France, has just celebrated its centenary by the publication of a special number. It contains an article by Dr. Babonneix, physician to the Hôpital de la Charité, in which he touches on "the acute ataxias of Leyden," the nature of which is being widely discussed, and which he holds to be a sequel of epidemic encephalitis. In a typical observation, and in other observations of various authors, which he has analyzed, he has established indisputably the previous existence of epidemic encephalitis, with all its essential characteristics.

Pollution of the Atmosphere in Paris

M. Fromentin, assistant director of the municipal laboratory of the city of Paris, has studied the composition of the atmosphere in the various sections of the city, and has submitted his report to the Academy of Sciences. From observations extending over two years, it appears that the air over the central districts of Paris is polluted. The air of the outside districts and of the suburbs is relatively pure. This pollution, for which automotive vehicles are responsible, diminishes rather rapidly as one proceeds upward. However, in the stores, in the cafés, on the sidewalks, and in the lower stories of buildings located on streets in which automobile traffic is heavy, the air is so charged with products from motor exhausts that the health of weakened persons compelled to breathe it all day may become impaired.

A Gift of Radium to the University of Lille

The University of Lille has received a gift of 760 mg. of Belgian radium. The radium was purchased with the balance left in the treasury of the committee that was appointed during the war to aid in the feeding of the population during the German occupation, when the scarcity of food caused great suffering. On the occasion of the official presentation, special ceremonies were held in the Grand Théâtre in Lille, in the presence of the Belgian authorities, who were the donors; the minister of public instruction, M. Herriot, and the Belgian minister, M. Jaspar.

Professor Calmette's Appointment to the Academy of Sciences

The Academy of Sciences (Institut de France) having a vacancy to fill, has chosen Prof. A. Calmette by an unusually large majority. Born in 1863 in Nice, Albert Calmette began his professional career as a naval physician, accompanying Admiral Courbet on his campaign in China. He was later stationed at Gabon, Newfoundland, and Miquelon. He became then a member of the corps of colonial physicians and was selected by Pasteur himself to found a Pasteur institute at Saigon, Cochin China. While there he made his well known researches on the venom of serpents and discovered his antivenom serum. He became later the director of the Pasteur Institute of Lille, which post he continued to hold during the German occupation. Since 1917, he has been assistant director of the Institut Pasteur, in association with Dr. Emile Roux. He has made important researches on the tubercle bacillus, and discovered, in collaboration with Guérin, the B C G vaccine, which, when administered to children by mouth, during the first days of life, protects them against tuberculosis. At present, there are in France 40,000 children who have been vaccinated by this method, in whom thus far the tuberculosis mortality has been only 1 per cent, whereas the mortality of children of tuberculous parents ranges around 24 per cent.

NETHERLANDS

(From Our Regular Correspondent)

Nov. 22, 1927.

Cancer Research in the Dutch East Indies

The Institute for Cancer Research in the Dutch East Indies was founded in 1922 through the instance of Professor Rotgans, who gave the inspiration from Amsterdam. It functions in the following manner: It is administered primarily by a directing committee. The management in charge of the program consists of a directing bureau with administrative, financial and technical departments. The technical section includes (1) the collection of statistics, the management of the library, and the preparation of various local publications on cancer; (2) laboratory researches, which comprise (*a*) animal experiments, (*b*) chemical and physical (electrical) researches, and (*c*) the examination of tumors obtained from operations and necropsies, which entails relations with almost all the hospitals, laboratories and physicians of the country; (3) a clinical subdepartment, which serves as a center for clinical, diagnostic and therapeutic observations, thus giving rise to contacts with the same hospitals, laboratories and physicians, and (4) a publicity subdepartment, which is occupied with (*a*) the creation of subsections and the recruiting of new members; (*b*) the publication of bulletins and annual reports, and (*c*) lectures and projections.

Cancer Among the Tropical Races

Dr. De Vogel has published, under the sponsorship of the committee of the international bureau of public health, an article based on studies carried out in the Institute for Cancer Research in the Dutch East Indies, located at Bandung. The author reaches the conclusion that the number of tumors among the Javanese and Chinese residing on the east coast of Sumatra is by no means less than are found among similar groups in Europe. The difference in location in the various organs needs to be studied further. The most striking observation is the high frequency of primary carcinoma of the liver in the Javanese and the Chinese. Ninety per cent of such carcinomas were found in cirrhotic livers.

The Milk Problem in Amsterdam

By the use of severe measures the percentage of cases of adulteration of milk has been reduced to about 2 per cent. A new regulation requires that milk coming from regions located outside the territory subject to the control of the city of Amsterdam must be pasteurized in such a manner that the Storch test is negative. There is no obligation that it be sold in bottles. The milk of the immediate environs of Amsterdam, unless the producers have entered into some particular contract, will remain subject merely to the ordinary control of the inspection service for food products. The milk the producers of which have entered into a contract subjecting them to the control of a special establishment subsidized by the municipality, which has agreed to get rid of the cows affected with open tuberculosis (in return for compensation), will be sold by dealers who likewise are connected with the

control establishment and subject to certain regulations (medical examination, etc.). The milk will be delivered in sealed bottles bearing labels specifying that they contain raw milk, which must be boiled. The price of this certified milk will be somewhat higher than other milk—at least, for a time.

Tuberculosis in Java

Dr. Sitsen, director of the anatomopathologic institute of the school of medicine of the Dutch East Indies, has published an article on tuberculosis in Java. The evolution of the disease there is much more rapid than in Europe. The lymph glands are often involved. Intestinal tuberculosis occurs frequently as a complication of pulmonary localization. The same is true of laryngeal bacillosis. During the terminal period, a miliary condition of the spleen is frequently observed, and occasionally true caseous abscesses develop. Urogenital tuberculosis is rare; cerebral lesions are likewise infrequent.

Health Exposition in the Dutch East Indies

For the first time, as a result of the initiative of Dr. Nab, professor of hygiene at Bandung, the health authorities took advantage of the large attendance at the annual fair held in Bandung to launch a health exposition as a form of publicity campaign. The exposition was a great success. The crusade against all forms of infectious disease—malaria, filariasis, the plague, ancylostomiasis—was demonstrated, and the importance of improvements in dwellings was emphasized. Likewise, the value of good drinking water, the menace of dust, the need of better roads, and the necessity of draining away residual waters, were made prominent.

The Institute for Cancer Research exhibited a series of beautiful and instructive plates. A model of the buildings of the Stovia (the school of medicine) was displayed. There was likewise an exhibit of poisonous animals: serpents, scorpions, giant spiders and the like. Also the Pasteur Institute and the vaccination bureau had displays of their activities.

BELGIUM

(From Our Regular Correspondent)

Nov. 23, 1927.

Organization of the Public Health Services in the Congo Region

In an article published in the colonial review *Congo*, Dr. Rodhain gives an account of the organization of all the public health services in the Congo region. In addition to a group of physicians charged with the general management of the services, there are technicians specially trained in laboratory research and in public health work. The laboratories prepare also the various vaccines from virus obtained locally. At present there are three such institutes in full operation, the oldest of which—that at Leopoldville—was created more than twenty-five years ago and has furnished valuable scientific researches.

The general medical service has developed in a fairly satisfactory manner, although it is scarcely as extensive as is needed for a territory so vast as that of the Belgian Congo. It is in the hands of attending physicians—resident and perambulant, some of whom are connected with fixed sanitary units: hospitals, military hospitals, and sanitary stations on the seacoast and in the interior. The others are charged with duties requiring them to cover a considerable extent of territory. The missionaries have created auxiliary medical stations in many regions. This auxiliary service cannot be compared with a regular organization the whole time of which is devoted to medical assistance, but in many remote regions the missionaries render important aid. Some of the missions have a complete corps of practitioners and nurses.

The Red Cross of the Congo, a branch of the Red Cross Society of Belgium, has organized two sanitary units, and proposes to occupy, by means of further units, the wide strip of territory that separates them. Just recently, it established at the University of Louvain a society that is training native men and women as nurses. The training of natives as aids has been one of the important services rendered by the public health service of the colony. The government cannot increase indefinitely the number of European physicians and aids, for they are difficult to procure and the expense is great. No less than six government schools for the training of native medical aids are in operation in the colony. "The natives must be aided by the natives" is the watchword, and the natural outcome of the creation of native medical aids will be the training of the natives as physicians.

Franco-Belgian Medical Conventions

A Paris letter published here reported the meeting at Lille of the Franco-Belgian medical societies. These conventions are the outgrowth of Franco-Belgian medical societies on the border, the first of which was founded in 1920. In 1922, the Association médicale de la Vallée de la Lys was founded. Following the conventions held in Cassel and in la Panne, the creation of a second society, the Association de la Vallée de l'Yser, was decided on in September, 1923. The Association de la Vallée de l'Escaut [the Scheldt] was created in 1925. At the various meetings of these societies, which were held alternately in the Belgian and in the French cities, at first a scientific lecture on some subject of immediate medical interest was arranged. The second part of the meetings was devoted to the study of matters of direct professional interest. In 1924, the Franco-Belgian medical societies convened at Lille in a general assembly. This was the beginning of the Réunions médicales franco-belges, which have been held every year since then.

Congress of Psychiatry and Neurology

The thirty-second session of the Congrès des médecins aliénistes et neurologistes of France and French-speaking countries will be held in Antwerp, July 23-28, 1928, under the chairmanship of Profs. Henri Claude of Paris and A. Ley of Brussels. The main topics on the program are: "Catatonia," the chief paper on the subject to be presented by Prof. Paul Divry of Liége; "The Algias of the Upper Limbs," with an opening paper by Prof. H. Roger of Marseilles, and "The Treatment of General Paralysis," the discussion to be opened by Drs. B. Dujardin and René Targowla.

Celebration in Honor of Professor Jean-Baptiste Coppez

The Société belge d'ophthalmologie will celebrate, November 27, the completion of sixty years of professional activity of the founder of the chair of ophthalmology at the University of Brussels, Professor Coppez. During the ceremonies, a plaque, the work of the sculptor Godefroid Devreese, will be placed in the ophthalmologic clinic of the Hôpital St. Jean.

Personal

Dr. Porter of Boston has been elected corresponding member of the Académie royale de médecine of Belgium.

Medical Fees

The *Scalpel* contains an article on medical fees, in which it is brought out that the cost of living has increased eightfold, whereas the medical fee scale has been augmented barely fivefold. Physicians, however, have to live, and it is surprising that the daily press protests against the present medical fee scale. Nevertheless, the medical profession continues to be considered an apostolic mission, which should take no account of the matter of daily bread.

BERLIN

(From Our Regular Correspondent)

Dec. 3, 1927.

Constitution and Character

The Aerztliche Gesellschaft für Sexualwissenschaft und Konstitutionsforschung of Berlin convened, November 18 and 19. Specialists from other cities had been invited. The main topic discussed was "Constitution and Character." The sessions were opened by the chairman, Max Hirsch, gynecologist, who gave a general survey of the development and significance of character research in therapeutics. F. Kraus brought out analogies and inner relationships between chemical and physical phenomena, on the one hand, and biologic and psychologic manifestations, on the other hand, and gave his conceptions of the relation between the psychic and the physical. He warned against bringing psychology and biology into too intimate and unreserved relationship. The fact that, in present-day thinking, the ego is deduced predominantly from psychic factors appears to him just as onesided as—for example—the current exaggeration of the significance of internal secretions. The psychic and the physical are two distinctly separate manifestations, neither one reducible to the terms of the other; neither the doctrine of psychophysical parallelism nor the theory of identity can be seriously upheld. Kraus recommends, therefore, that psychology take psychic products rather than psychic processes as its point of departure. In studying psychic products we find such surprising agreements with the characteristics of protoplasm that the conclusion lies near at hand that our thinking is, in its expression, identical with the organizing principle of our body, in which connection, moreover, it must be considered that this body constitutes by no means a unity.

THE PROBLEMS AND METHODS OF CHARACTEROLOGY

Kronfeld of Berlin entered into a somewhat detailed comparison of metaphysical psychologic endeavors and empiric, biologic efforts. From the methodological standpoint, he defined the limitations of various anthropologic measurements.

Ewald, psychiatrist of Erlangen, took Kretschmer's famous "Constitution and Types of Character" as his point of departure, although he accepted the author's expositions only in part. He praised Kretschmer for his keen physiognomic insight, but alleged that he often wraps an anthropologic, scientific cloak about his clearly observed and almost artistically described types. Ewald endeavors to get beyond Kretschmer's rigid correlations between constitution and character and the assignment of definite temperaments to definite anatomic forms. He defines character [after omitting all considerations as to "intelligence" and "temperament"] as a disposition to react in a given manner on the basis of feelings, will and instinct, and, to express it somatically, as a disposition of the autonomic and the central nervous systems to react in a specific manner. The psychic modes of reaction depend thus on the nature of the nervous systems. The far-reaching character changes following encephalitis, such as were formerly observed only in congenital moral feeblemindedness, have revived the belief in an anatomically tangible substratum of character; in fact, the unwillingness to assume a definite localization of psychic qualities should not be exaggerated. Ewald considers the constitutional predisposition as more important than the environment. Of special importance are the electrolytic processes (potassium and calcium) as the inorganic, and the hormones as the organic, bearers of the electric manifestations, the smallest bodily components of character that are produced by way of the blood or the internal secretion. Ewald proposes a number of new notions or concepts that can be applied not only to the psyche but also to the body: intensity, extent, repression, inhibition.

RESEARCHES ON HEREDITARY CHARACTER

Hoffmann, psychiatrist of Tübingen, discussed the subject of researches on hereditary character. Their purpose is, as in botany and zoology, to separate the genotypic and phenotypic elements; that is to say, to ascertain the genes or "radicals" of character that are transmissible independently of one another and to separate them from its external manifestation. To be sure, it is a long way still to the establishing of laws after the manner of the mendelian laws. Hoffmann gave a number of examples of heredobiologic analysis of personal character, which is most easily carried out in case of children of disharmonious parents. In this connection, he emphasizes the importance of changes in relative character structure: when a quality is transferred from the center of a parent's character to the periphery of the child's character, or vice versa. Thus, for example, the simple and naive joyousness of the mother may take on an entirely different function if it is injected into the nature of the daughter, weighed down by the influence of the father's disposition, and may be practically swallowed up as it serves as a convulsive compensation. Hoffmann called attention also to the importance of age in the differentiation of character. Thus, as he enters on the stage of puberty, a model boy may become a liar and a thief, or, again, wild boyishness may be transformed into sound mental staidness, or timid, schizoid psychopaths may become sober and stern professional men. We have not advanced so far that we can make any sort of prognosis as yet. Age often brings surprising changes. Hoffmann recommends supplementing in characterology definite quality terms by joining thereto certain notions expressive of instinct and impulse, but he would not go so far as psychoanalysis does and supplant the former by the latter.

The only psychologist to speak was the philosopher Professor Utitz of Halle. He emphasized in principle the possibility of collaboration in this field between psychology and the natural sciences, but stressed the need of each retaining its autonomy. He discussed then a number of separate problems; among others, the well known question as to whether hereditary disposition or environment is the greater force or influence in the shaping of character. He answered the question in the light of the William Stern convergence theory, which admits not only hereditary but also external components. The idea of environment is a difficult notion in itself. What, for example, is the best environment for an artist: that which inspires him to produce the most and the best work, or that which the therapeutist or the moralist prescribes? There has been some difference of opinion as to whether a person's own body constitutes a part of his environment. Utitz, calling on Aristotle in support of his view, denied energetically that the body is part of a person's environment. Instead of seeking a primary cell as the foundation of character, peeling off, as it were, one tissue after another, and after the body is disposed of, paring down "feeling, willing and thinking," it is more in order to endeavor to discover definite "laws." And there is no better way of discovering these laws than through observation of the conduct of man; for which reason it is not sufficient to include in characterology the theory of constitution, mimetics and graphology, but, going beyond these, the researches on the American theory of psychologic study termed "behaviorism," which has become known in Germany chiefly through the efforts of the Bühlers (husband and wife), must be brought within the purview.

The Berlin psychiatrist Hildebrand (Wittenau) delivered the final address, in which he dealt with congenital inferiority of character; that is, the character associated with an hereditarily psychopathic constitution, opening up thus the study of pathologic character. The speaker presented the essential nature of the psychopathic character as a departure from an

ideal norm and not from a statistically computable average standard. He demanded for the recognition and differentiation of psychopathic character researches on the hereditary transmission of its various forms and sought especially to establish the different psychopathic types of character as the results of various degrees and stages of degeneration.

PRAGUE

(From Our Regular Correspondent)

Dec. 1, 1927.

Census of Physicians and Midwives

A recent report of the state statistical office furnishes data on the number of physicians and midwives in the country. The data are the first of their kind to be published since the war came to an end. In all, 5,916 physicians practicing outside the hospitals and 1,217 of those belonging to the staff of the hospitals have been enumerated. The ratio to 10,000 of the population for physicians practicing exclusively outside the hospitals is 4.3; for all physicians, 5.2. Those territories where industries are developed have attracted the largest numbers of physicians. Agricultural districts, in spite of the fact that the population can afford to pay, do not have enough physicians. There are registered 10,938 practicing midwives, of whom 9,410 have been found to possess a diploma from one of the state schools. This gives a ratio of 15.5 to 10,000 women, or 33.1 births to one midwife annually. The results of this study show that the problem is not one of absolute numbers of the sanitary personnel but one of distribution.

Congress of Natural Scientists, Physicians and Engineers

The Sixth Congress of the Czechoslovak Natural Scientists, Physicians and Engineers will be convened in Prague, May 27, 1928. This congress is an old institution in Czechoslovakia. The idea originated with J. E. Purkinje, who always emphasized the importance of cooperation between the physicians and the students of natural science because he was convinced that progress in medicine could come only from the results of theoretical investigations. The first congress of this type took place in 1880 under the presidency of the Prague internist R. Eiselt. The last congress was held in 1914, shortly before the outbreak of the war. At that time practically all the Slavic nations were represented. The sixth congress will meet under more favorable auspices than ever before. The country has become an independent state and one of the first deeds of the new government has been the foundation of two new universities with medical faculties in Brno and Bratislava. This has resulted in an enormous growth of possibilities and actual production of scientific work in the country as compared with prewar times. Consequently the organization committee of the congress will make an effort to present the results of Czechoslovak scientific endeavor to the western nations. Scientific workers of all nationalities may become members of the congress if they have announced their presence two weeks before the beginning of the congress. They may present their lectures in their native language. The congress has been combined with the assembly of the Federation of Slavic Physicians, which held its first session in Warsaw last year.

Seventieth Birthdays of Mares and Kabrhel

Recently two seventieth birthdays, which in this country always mark the end of the professional career of university professors, have been celebrated at the Czech medical faculty of Prague. Both of the men have been connected with the faculty since its organization. Prof. F. Mares is the retiring chief of the department of physiology. Professor Mares' scientific work was concerned chiefly with the functions of the nervous system. He has been particularly successful in getting the students interested in the methods of scientific research. Through his strict criticism he also had considerable influence on the scientific literature produced in other branches of medicine in the country. The second to retire from the medical faculty in Prague is Prof. G. Kabrhel, head of the department of hygiene. Professor Kabrhel's chief contributions to medical science are concerned with water supplies. His studies on natural filtration of waters have won for him an international reputation. He is to be credited also with the development of the first institute for the control of foods in this part of the world.

Budget

The budget for the ministry of public health and physical education has been approved by parliament. A reform of salaries of public employees was carried out with the principle in mind that there should be fewer public employees but that they should be better paid. The number of higher positions has been reduced, while their salaries were raised to a very decent income. The present reform makes it possible for them to devote their entire time to their public functions. This has not been applied throughout the whole system of the public health service. Local health officers are paid small sums of money which are merely a supplement of their incomes from private practice. It is to be regretted that it was not possible to introduce the principle of full-time personnel more widely into the public health service. The item for the campaign against acute infectious diseases has been cut almost by one third, while the item for the fight against social diseases shows an increase by the same amount. This is to be explained by the general improvement of public health conditions, under which acute infectious diseases do not require so much attention as social diseases. The items for physical education and for general sanitation as well as the sum for the state subsidy for the construction of public hospitals also show an increase as compared with the previous year. An increase by a whole third of the total sum is to be found in the item for the fees to be paid in public hospitals for those who are not able to pay. This is to be explained by the effort to facilitate to the public hospitals the collection of fees for the patients and in this way bring equilibrium into the budgets of public hospitals which have gone through serious crises in the years following the war.

Disinfestation

The use of hydrocyanic acid gas for the disinfestation of schools and public buildings has been forbidden by the board of health of Prague. Hydrocyanic acid gas has been used as an insecticide quite widely since the war. Lately two unfortunate incidents caused by insufficiently tight walls in dwellings where hydrocyanic acid gas has been used for disinfestation and where several persons died as a result of poisoning in neighboring dwellings have caused considerable alarm.

Marriages

DR. LAURA V. G. MACKIE, Attleboro, Mass., to Rev. George A. Conibear of Lakemont, N. Y., in November, 1927.

MORRIS IRWIN BERKSON, Youngstown, Ohio, to Miss Freda R. Rosenberg of Pittsburgh, Nov. 1, 1927.

CHARLES EMERSON SOULE to Mrs. Opal Fern Fry Cameron, both of Beardstown, Ill., Nov. 22, 1927.

CLARENCE SALEE SUMMERS to Miss Minnie May Sweets, both of Tulsa, Okla., Dec. 24, 1927.

EDWARD LEO MCGINLEY to Miss Regina Trapold, both of Wilkes-Barre, Pa., Nov. 9, 1927.

SCOTT P. VERREI to Miss Lida M. Zetty, both of Philadelphia, Oct. 15, 1927.

Deaths

Jacob Solis Cohen ⊕ Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1860; honorary professor of laryngology, Jefferson Medical College; secretary of the Section on Ophthalmology of the American Medical Association, 1881-1882; Civil War veteran; past president of the American Laryngological Association and the Philadelphia County Medical Society; formerly on the staffs of the German Hospital, now the Lankenau Hospital, the Jewish Hospital, the Philadelphia General Hospital and the Norristown (N. Y.) State Hospital; author of "A Treatise on Inhalation"; "Diseases of the Throat"; "Croup in Its Relations to Tracheotomy," and "The Throat and the Voice"; aged 89; died, Dec. 22, 1927, of uremia.

William Clarence Hollopeter ⊕ Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1877; formerly emeritus professor of pediatrics, Medico-Chirurgical College of Philadelphia; at one time member of the House of Delegates, and chairman of the Section on Diseases of Children of the American Medical Association, 1905-1906; past president of the Association of American Teachers of Diseases of Children; served during the World War; for many years on the staff of the Philadelphia General Hospital; author of "Hay-Fever" and of "Hay-Fever and Its Successful Treatment"; aged 72; died, Dec. 16, 1927.

Edward Watts Saunders ⊕ St. Louis; University of Virginia Department of Medicine, Charlottesville, 1875; emeritus professor of diseases of children and clinical midwifery, Washington University School of Medicine; member of the Central States Pediatric Society; president of the board of directors and chief of the department of pediatrics, Bethesda Hospital; formerly on the staffs of the Missouri Baptist Sanitarium and St. Louis Maternity Hospital; aged 73; died, Dec. 19, 1927, of cerebral thrombosis.

Edward Leonard Bull ⊕ Ithaca, N. Y.; Medical Department of Columbia College, New York, 1888; member of the American Academy of Ophthalmology and Oto-Laryngology; past president of the Hudson County (N. J.) Medical Society; formerly on the staffs of St. Francis and the Jersey City hospitals, Jersey City, N. J.; on the staff of the Ithaca Memorial Hospital, where he died, Dec. 18, 1927, aged 66.

William Porter Mills ⊕ Claremore, Okla.; Medical Department of Columbian University, Washington, D. C., 1897; past president and secretary of the Rogers County Medical Society; formerly health officer of Las Vegas, N. M.; at one time superintendent of the New Mexico Hospital for Insane, Las Vegas; served during the World War; aged 54; died, Oct. 3, 1927, of carcinoma of the stomach.

Joseph Zepher Bergeron ⊕ Chicago; Rush Medical College, Chicago, 1889; member of the American Academy of Ophthalmology and Oto-Laryngology; formerly instructor in laryngology, rhinology and otology, College of Physicians and Surgeons, Chicago; attending otolaryngologist and rhinologist to St. Joseph's Hospital; aged 63; died, Dec. 20, 1927, of coronary thrombosis and angina pectoris.

Samuel Parsons Tuggle, Stockton, Calif.; University of California Medical School, San Francisco, 1889; member of the California Medical Association; formerly demonstrator of anatomy at his alma mater; for fifteen years assistant physician to the Stockton State Hospital; aged 71; died, Dec. 18, 1927, of chronic myocarditis and arteriosclerosis.

Harry Joseph Dwyer ⊕ Chicago; University of Illinois College of Medicine, Chicago, 1912; associate in dermatology, Loyola University School of Medicine, Chicago; served during the World War; attending dermatologist and syphilologist to the Mercy Hospital; aged 38; died, Dec. 16, 1927, at his home in Oak Park.

Frederick James Schweikart ⊕ Elmhurst, N. Y.; Long Island College Hospital, Brooklyn, 1905; formerly on the staffs of St. John's Hospital, Long Island City, Queensboro Hospital, Jamaica, the Post Graduate Hospital, New York and the Flushing (N. Y.) Hospital; aged 43; died, Dec. 20, 1927, of heart disease.

Alberto M. Sherburne ⊕ Cordell, Okla.; Northwestern Medical College, St. Joseph, Mo., 1881; president of the Washita County Medical Society; city health officer and formerly county health officer; on the staff of the Florence Hospital; aged 81; died, Oct. 15, 1927, of carcinoma of the stomach.

⊕ Indicates "Fellow" of the American Medical Association.

James Walker Humrichouse ⊕ Hagerstown, Md.; University of Maryland School of Medicine, Baltimore, 1873; past president of the Medical and Chirurgical Faculty of Maryland and the Washington County Medical Society; formerly on the staff of the Washington County Hospital; aged 78; died, in December, 1927, of heart disease.

Wilson Prestman Malone, Washington, D. C.; University of Maryland School of Medicine, Baltimore, 1888; member of the Medical Society of the District of Columbia; on the staff of the Emergency Hospital; formerly on the staff of the Providence and Children hospitals; aged 64; died, Dec. 18, 1927, of arteriosclerosis.

Richard Kimble Wheeler ⊕ Port Huron, Mich.; Columbia University College of Physicians and Surgeons, New York, 1899; past president and secretary of St. Clair County Medical Society; on the staff of the Port Huron Hospital, where he died, Dec. 15, 1927, aged 55, of peritonitis following intestinal perforation.

Irene Smedley, Sioux Falls, S. D.; College of Physicians and Surgeons, Chicago, 1901; University of Illinois College of Medicine, Chicago, 1912; for many years a medical missionary in India; aged 64; died, Nov. 30, 1927, at the Augustana Hospital, Chicago, of carcinoma.

Thomas Frazier Reynolds, Canton, N. C.; North Carolina Medical College, Charlotte, 1904; member of the Medical Society of the State of North Carolina; served during the World War; aged 55; died, Dec. 17, 1927, at the Meriwether Hospital, Asheville, of pneumonia.

Thomas Howard Grosvenor ⊕ Wenatchee, Wash.; Northwestern University Medical School, Chicago, 1908; past president of the Chelan County Medical Society; on the staff of St. Anthony's Hospital, where he died, Dec. 11, 1927, of cerebral hemorrhage, aged 54.

Edwin Lewis Smock, Bath, Pa.; Jefferson Medical College of Philadelphia, 1878; member of the Medical Society of the State of Pennsylvania; formerly on the staffs of the Easton (Pa.) Hospital and St. Luke's Hospital, Bethlehem; aged 69; died, Dec. 4, 1927.

Nehemiah Atwood Haning, Wheeling, W. Va.; Western Reserve University School of Medicine, Cleveland, 1896; member of the West Virginia State Medical Association; aged 56; died, Dec. 9, 1927, at a local hospital, of gangrenous appendicitis.

A. Josephine Sherman, New York; Woman's Medical College of the New York Infirmary for Women and Children, 1890; member of the Medical Society of the State of New York; aged 78; died, Nov. 16, 1927, of carcinoma of the breast.

Walter J. McLendon, Wadesboro, N. C. (licensed, North Carolina, by the state board of medical examiners, 1873); formerly a druggist; aged 80; died, Nov. 24, 1927, at the home of his son in Washington, D. C., of chronic myocarditis.

Melvern S. Lyon, Atlantic City, N. J.; Hahnemann Medical College and Hospital of Philadelphia, 1889; aged 69; died, Dec. 20, 1927, in the Atlantic City Hospital, as the result of injuries received when struck by an automobile.

Thomas Miller ⊕ Oconomowoc, Wis.; Rush Medical College, Chicago, 1892; past president of the Waukesha County Medical Society; aged 57; died, Dec. 14, 1927, of cerebral embolism and subacute bacterial endocarditis.

Alexander Haggart, Sawtelle, Calif.; Kansas Medical College, Topeka, 1898; past president of the Franklin County (Kan.) Medical Society; formerly coroner of Franklin County, Kan.; aged 51; died, Dec. 9, 1927.

Alonzo Wellington Benton ⊕ Neosho, Mo.; Bellevue Hospital Medical College, New York, 1882; past president of the Newton County Medical Society; aged 73; died, Dec. 6, 1927, at St. John's Hospital, Joplin.

Bert Thomas ⊕ Walla Walla, Wash.; University of Michigan Medical School, Ann Arbor, 1904; formerly on the staff of the Walla Walla Valley General Hospital; aged 53; died, December 8, 1927, of heart disease.

Luther William Quinn ⊕ Du Bois, Pa.; University of Pittsburgh School of Medicine, 1896; on the staffs of the Du Bois and Maple Avenue hospitals; aged 57; died, Sept. 23, 1927, of carcinoma of the hard palate.

Charles Edwin L. Keen ⊕ Harrisburg, Pa.; College of Physicians and Surgeons, Baltimore, 1891; formerly on the staff of the Harrisburg Polyclinic, where he died, Dec. 20, 1927, of septicemia, aged 61.

William Leslie Waites, Tuscaloosa, Ala.; Birmingham Medical College, 1913; member of the Medical Association of the State of Alabama; aged 39; died suddenly, Dec. 9, 1927, of heart disease.

Alpheus Whiting Hoyt, New York; Medical Department of the University of the City of New York, 1895; city physician of New Rochelle; aged 61; died suddenly, Dec. 19, 1927, of a skull fracture received while stepping into an automobile.

Daniel De Calb Jay, San Bernardino, Calif.; College of Physicians and Surgeons, Keokuk, 1876; College of Physicians and Surgeons, Chicago, 1883; aged 76; died, Nov. 23, 1927, of cerebral hemorrhage.

William Franklin Mitchell ✠ Maplewood, Mo.; St. Louis University School of Medicine, 1921; aged 39; died, Nov. 29, 1927, at the City Isolation Hospital, St. Louis, of septicemia and scarlet fever.

John J. Haring, Tenafly, N. J.; Jefferson Medical College of Philadelphia, 1854; aged 93; died, Dec. 16, 1927, at the home of his daughter in Toledo, Ohio, as the result of injury received in a fall.

John D. Todd, McKenzie, Tenn.; University of Nashville Medical Department, 1899; member of the Tennessee State Medical Association; aged 71; died, Dec. 11, 1927, of pneumonia.

Emery Herbert Bayley ✠ Lake City, Minn.; Rush Medical College, Chicago, 1893; formerly on the staff of St. Elizabeth's Hospital, Wabasha; aged 62; died, Dec. 19, 1927, of chronic nephritis.

B. R. Brown, Gaffney, S. C.; College of Physicians and Surgeons, Baltimore, 1890; member of the South Carolina Medical Association; aged 60; died, Dec. 16, 1927, of heart disease.

Paul Crutsinger, Minden, La.; Tulane University of Louisiana School of Medicine, New Orleans, 1921; member of the Louisiana State Medical Society; aged 37; died, Dec. 6, 1927.

John Flanders Beaumont, Portland, Ore.; Hahnemann Medical College of Philadelphia, 1877; member of the Pacific Coast Oto-Ophthalmological Society; aged 72; died, Nov. 29, 1927.

William Ansyl Brooke ✠ Half Moon Bay, Calif.; Cooper Medical College, San Francisco, 1897; for many years county coroner and public administrator; aged 63; died, Dec. 10, 1927.

Cecil Kelly Maxwell, Alexander City, Ala.; University of Alabama School of Medicine, Tuscaloosa, 1891; aged 60; died, Nov. 13, 1927, in a hospital at Knoxville, of pneumonia.

Charles R. Cullinane, Buffalo; University of Buffalo School of Medicine, 1896; formerly on the staff of the Deaconess Hospital; aged 58; died, Nov. 27, 1927, of angina pectoris.

William Avory Howard, Waco, Texas; University of Louisville (Ky.) School of Medicine, 1881; aged 73; died, Nov. 21, 1927, at the Providence Sanitarium, of pleuropneumonia.

Arthur Manning Curran, Ahmeek, Mich.; Jefferson Medical College of Philadelphia, 1914; aged 36; died, Dec. 5, 1927, at the Crockett Hospital, Crockett, Texas, of pneumonia.

Milton S. Greene, Mill Shoals, Ill.; Medical College of Evansville, Ind., 1881; formerly a druggist; aged 71; died, in November, 1927, of paralysis and nephritis.

Hassen Allen Rogers, Knoxville, Tenn.; Medical Department of the University of the City of New York, 1878; aged 74; died, Nov. 2, 1927, of angina pectoris.

Julius Backy, St. Louis; Barnes Medical College, St. Louis, 1911; member of the Missouri State Medical Association; aged 68; died, Dec. 9, 1927, of heart disease.

John W. Hay, Harrisburg, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1871; also a druggist; aged 80; died, Nov. 26, 1927, of senility.

Christopher Healy Christie, Wawota, Sask., Canada; University of Bishop College Faculty of Medicine, Montreal, Que., 1900; aged 52; died recently.

Charles Bonsall Smith ✠ Newton, Pa.; Jefferson Medical College of Philadelphia, 1884; aged 63; died, Dec. 11, 1927, of a self inflicted bullet wound.

Junsai Watanabe, Los Angeles; Tokyo Imperial University, 1894; member of the California Medical Association; aged 66; died, Sept. 9, 1927.

Newton G. Vassar, Ridgeway, Ohio; Eclectic Medical Institute, Cincinnati, 1892; aged 59; died, Dec. 7, 1927, of heart disease.

Arthur M. P. Parrett, Estancia, N. M.; Medical College of Ohio, Cincinnati, 1900; aged 54; died, Nov. 16, 1927, of paralysis.

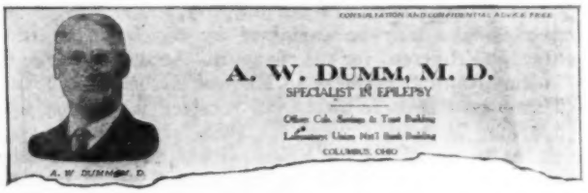
William T. Miller ✠ Schenectady, N. Y.; Albany Medical College, 1881; aged 68; died, Sept. 23, 1927, of angina pectoris.

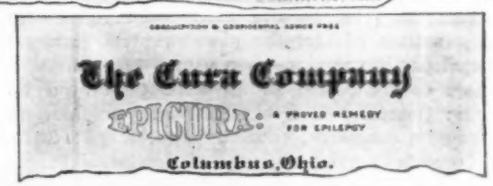
Bureau of Investigation

NOBRO

Another Phenobarbital (Luminal) Mixture Sold as a Cure for Epilepsy

The Nobro Medic Company of Worthington, Ohio, sells "Nobro," a mixture of phenobarbital (luminal) and milk sugar, on the mail-order plan as a cure for epilepsy. The individual behind this concern seems to be one Harry M. Freck, whose claim to medical knowledge appears to be based on the fact that he once operated the Freck Garment Company, and at present conducts the Freck Stenographic Bureau, and an advertising circular-letter business. Freck also





has had other fliers in the "patent medicine" field. Under the style "Epicura Company" he has sold another "epilepsy cure" containing bromides, while under the trade name "Nervatone Laboratory" he sold "Nervatone," also recommended for "fits." Epicura seems to have been originally put on the market by a quack, one A. W. Dumm, M.D., who called himself a specialist in epilepsy. Later, A. W. Dumm, M.D., was changed to "The A. W. Dumm, M.D., Company," which still later became the "Cura Company," and finally the "Epicura Company."

Apparently, the Nobro Medic Company obtains its prospective victims by purchasing "sucker lists" that are available to those who are in the mail-order medical business. The methods by which Nobro is advertised show no originality—they are common to the mail-order medical quack. There are the usual form-letters and the follow-up system; there is a letter from a local bank (the Worthington Savings Bank Company) stating that it is holding $1,000 in a special trust

account to protect the Nobro Medic Company's customers, and stating, further, that the bank's investigation of the company has resulted most favorably to the company. There is reproduced a letter from the postmaster of Worthington, Ohio, headed, "Postmaster Says We Are Reliable." At this point, it might be worth calling to the attention of the postal authorities at Washington what seems to be a gross misuse of official position. The Worthington postmaster is quoted in a facsimile letter as stating that this quack concern is, in the opinion of the postmaster, "honest, reliable and trustworthy" and enjoys the confidence of many of the leading citizens of Worthington.

Another piece of advertising hokum used by the Nobro Medic Company is a facsimile letter on the stationery of T. R. Mason, M.D. Dr. Mason declares in this letter that, as a physician, he can honestly recommend the Nobro treatment as being the "very best treatment for attacks of Epilepsy or Fits, that money can possibly buy." Dr. Mason's interest in this fake may be explained by the fact that he is the "Medical Referee" for the company. According to the records in the files of the American Medical Association, Timothy R. Mason was born in 1852, and received a diploma from the Starling Medical College in 1885. For twenty years, or more, he practiced in Sugar Grove, Ohio, and sometime between 1910 and 1912 he seems to have moved to Columbus, Ohio, where he has been since that time. Needless to say, Dr. Mason is not a member of his local society nor, of course, of the American Medical Association.

A person who wrote to the Nobro Medic Company, asking whether the product would cure epilepsy, received a reply signed "T. R. Mason, M.D." This letter stated that while it was impossible to promise a cure in any particular case, yet Mason knew of some who had had no returns of epilepsy seizures ten, fifteen and even forty years after treatment. As a matter of fact the phenobarbital (luminal) treatment of epilepsy is not more than fifteen years old.

One of the pieces of advertising put out by the Nobro Medic Company is a sixteen-page pamphlet, issued in the form of a magazine, entitled "The Nobro Health Advocate." It consists almost entirely of testimonials, most of them illustrated with pictures of the individuals who have given them. It also contains the facsimile letter of T. R. Mason, as well as the facsimile letters from the Worthington Savings Bank Company and the Worthington Postmaster.

Nobro comes in the form of pink capsules containing a white powder. The "course" consists of ninety capsules, each weighing approximately 1½ grains. Four dollars is charged for this. A "course" was ordered from the concern and turned over to the A. M. A. Chemical Laboratory, which has submitted the following report:

LABORATORY REPORT

"One original tin box of 'Nobro' (the Nobro Medic Company, Worthington, Ohio) was submitted to the A. M. A. Chemical Laboratory for examination. The package contained ninety pink capsules, containing a white, odorless, almost tasteless, faintly gritty powder; the average weight of the contents of each capsule was 0.102 Gm. (approximately 1.5 grains). The following declaration appeared on the trade package:

"'NOBRO (Non-Bromide) Extensively used in attacks of Epilepsy or fits. Positively contains no bromides. DOSE: One to three capsules daily; Children in proportion to age.'

"Qualitative tests indicated the presence of a barbital derivative (phenobarbital, 'Luminal') and lactose (milk sugar). Heavy metals, halides, sulphate, alkaloids and emodin-bearing drugs were not found. The ash on ignition was 0.02 per cent. Quantitative determinations yielded the following:

Loss on drying	3.25 per cent
Phenobarbital	40.60 per cent
Lactose (milk sugar) by difference	56.15 per cent

"From the foregoing, it may be concluded that each capsule of 'Nobro' (Non-Bromide) contains essentially 0.0414 Gm. (approximately ⅔ grain) of phenobarbital ('Luminal'), to which has been added lactose (sugar of milk); the daily dose, three capsules, is equivalent, therefore, to approximately 0.12 Gm. (2 grains).

"An accompanying sealed envelop, labeled 'Sample Nobro Liver Tablets' (the Nobro Medic Company), contained fourteen small brown chocolate-coated pills. Qualitative tests indicated a laxative combination, such as aloin, belladonna, cascara and strychnine."

From this report, it will be seen that Nobro is simply phenobarbital (luminal) and milk sugar. The public pays $4 for an amount of luminal, sold under a fancy name, that, purchased under its own name, could be had for $1.50.

The number of quack concerns selling luminal on the mail-order plan as a cure for epilepsy is increasing. Ten years ago, practically all of the nostrums sold for epilepsy were mixtures of the bromides. Today, a large proportion, if not the majority of them, are essentially luminal. This trade is deceiving an unfortunate part of the population by selling, under a fancy name and at an exorbitant price, a product that has no curative effect. It can probably be stopped in no way except by action of the post-office department, in the issuance of fraud orders. It is high time the federal authorities put a curb on the cruel deception practiced on epileptics by these mail-order fakers.

Correspondence

CHOLECYSTOGRAPHY AFTER ORAL ADMINISTRATION OF TETRAIODOPHENOLPHTHALEIN

To the Editor:—I have been pleased to read the article on the "modifications in the administration of tetraiodophenolphthalein by the oral route for cholecystography" by Dr. Victor Knapp (THE JOURNAL, Dec. 3, 1927).

Dr. Robert A. Arens and I have been using this method for the past eight months at the Michael Reese Hospital in Chicago and have found it very effective. Our experiences have been similar to Dr. Knapp's in that patients had no more reactions than with the keratin coated capsules and our shadows were a little sharper and denser.

We made a few tests and found a simple explanation why patients do not get the reactions which we feared would follow the use of plain gelatin capsules. Sodium tetraiodophenolphthalein is insoluble in weak acid solutions but very soluble in alkaline solutions. When the plain gelatin capsule disintegrates in five minutes in the stomach, the salt remains a precipitate as long as the gastric contents remain acid. It is conceivable that in a patient with achylia there may be some reactions.

ARTHUR R. BLOOM, M.D., Detroit.

MULE SPINNERS' CANCER IN THE UNITED STATES

To the Editor:—It is only about five years since the term "mule spinners' cancer" first gained currency. Most of the observations concerning this peculiar disease have reference to conditions in the English cotton industry. It has frequently been asserted that no cases of mule spinners' cancer have ever occurred in the United States. To test this assertion, I prevailed on the chief statistician of the division of vital statistics of the census to abstract for me from the cancer death certificates of 1926 all cases of cancer of the scrotum. Accordingly, thirty-three certificates were furnished and these have just been carefully examined. Much to my surprise, I find three certificates of cancer of the scrotum, specifically designating the occupation as that of mule spinners, while in three additional cases the occupation is referred to as a textile worker.

The first case is that of a mule spinner, aged 78, born in England, who died at Stonington, Conn., Sept. 18, 1926. The second is that of a mule spinner, aged 47, born in Canada, who died in Middlesex County, Mass., May 30, 1926. The

third is that of a mule spinner, aged 52, born in England, who died in Berkshire County, Mass., Feb. 9, 1926.

The other textile operatives may also be referred to as a matter of record. One was an "operative," aged 67, born in Canada, who died of cancer of the scrotum, Dec. 30, 1926, in Lowell, Mass. The second was a carpet weaver, aged 77, born in England, who died of cancer of the scrotum in Worcester, Mass. The third was a textile worker, aged 54, born in England, who died of cancer of the scrotum in the General Hospital, Philadelphia, July 17, 1926.

Thus it is shown that mule spinners' cancer occurs in the United States, but that no attention has been paid to the occupational facts of the deceased. How many such cases have occurred in the past is now difficult to ascertain, but an effort will be made in the future to keep the exact facts under observation. It is merely one further illustration of the superficial work that has been done in connection with the statistical analysis of cancer deaths, which can yield much information of great value if dealt with individually, as well as collectively, in accordance with approved statistical methods.

FREDERICK L. HOFFMAN, Wellesley Hills, Mass.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

ILLUMINATING GAS — NATURAL GAS

To the Editor:—1. What are the constituents of natural illuminating gas? 2. What, in natural illuminating gas, produces death? 3. Is the treatment for poisoning from natural illuminating gas the same as for carbon monoxide poisoning? 4. Is carbon monoxide a normal constituent of both artificial and natural illuminating gas? 5. What is the newest treatment for poisoning by (*a*) natural illuminating gas? (*b*) artificial illuminating gas?

M.D., Texas.

ANSWER.—The term "illuminating gas" implies an artificially produced gas. "Natural gas" is obtained from gas wells sunk usually in coal bearing areas. The term "natural illuminating gas" is somewhat confusing. It seems unwise to use it.

1. Natural gas does not contain carbon monoxide, although it may yield carbon monoxide if complete combustion does not take place, because of an insufficient supply of oxygen. Natural gas itself is practically nontoxic: A typical analysis of natural gas, accredited to Burrell, and printed in "Industrial Health," by Kober and Hayhurst (Philadelphia, P. Blakiston's Son and Company, 1924, page 372) is as follows:

	Per Cent by Volume
Carbon dioxide (CO_2)	Trace
Methane (CH_4)	84.7
Ethane (C_2H_6)	9.4
Propane (C_3H_8)	3.0
Butane, etc. (C_4H_{10})	1.3
Nitrogen (N_2)	1.6

2. Natural gas will not support life, since it contains insufficient oxygen. Theoretically, then, it could cause a physical asphyxiation similar to drowning. Practically, however, suicide, homicide and accidental death from natural gas itself are almost unknown.

3 and 5. The treatment for asphyxiation by natural gas, if it should occur, and of asphyxiation by carbon monoxide would be practically the same. Prone pressure artificial respiration should be combined with the application of oxygen and carbon dioxide. Methods of resuscitation are well described in three articles on resuscitation which were written, respectively, by Wills Maclachlan, Yandell Henderson and C. K. Drinker and published in THE JOURNAL, Sept. 6, 1924, pp. 756, 758 and 764. Dr. Haven Emerson, professor of public health administration in Columbia University, is intimately conversant with work in resuscitation.

4. Carbon monoxide is not a normal constituent of natural gas. The amount of carbon monoxide in illuminating gas (the term is used to designate a manufactured product) varies. Water gas after it has been carbureted contains about 30 per cent of carbon monoxide. Alice Hamilton, in "Industrial Poisons in the United States" (New York, Macmillan Company, 1925, p. 387), quotes McNally that a typical analysis of gas from a city main in Chicago shows 26.9 per cent of carbon monoxide.

ORDER OF INOCULATIONS FOR IMMUNIZATION

To the Editor:—I have a patient who wishes to go into a nurses' training school, February 1. Before she can send in her application she must furnish certificate of recent vaccination for smallpox, Dick test, Schick test and typhoid inoculation. In what order should I give these and what interval should I allow in order to consume the shortest time possible? Please omit name.

M.D., Pennsylvania.

ANSWER.—To save as much time as possible, Dick tests may be made on the flexor surfaces of the forearms at the junction of the upper middle thirds at the same time a Schick test and Schick control test are made on the upper arm of the same person.

The Dick test should be observed the following day between twenty and twenty-four hours after the injection is made. The Schick test may be observed at the end of forty-eight hours. At this time, if there is not a psuedoreaction with the Schick test control, smallpox vaccination may be made on the arm used for the control of the Schick test. If there is much reaction and it is thought advisable to vaccinate on the arm, it would be best to wait until the reaction from the control Schick test has subsided.

In case both the Schick test and the Dick test are positive and it is wished to immunize against both scarlet fever and diphtheria, it is advisable to begin with the immunization against scarlet fever and carry it to the point of an entirely negative retest. After this, the three doses of typhoid vaccine may be given at proper intervals and, last, the injections for active immunization against diphtheria are given, not neglecting to repeat the Schick test to be sure that immunization against diphtheria is complete.

The reason for giving the injections for active immunization against scarlet fever, typhoid and diphtheria in the order mentioned is that properly prepared scarlet fever toxin, as licensed by the Scarlet Fever Committee, contains a minimum amount of foreign protein. Consequently it does not interfere with subsequent immunizations so much as the preparations that are not strictly supervised as to their content of foreign protein. Since the toxin-antitoxin for immunization against diphtheria contains the most foreign protein, it may, if given first, be the cause of more severe reactions during the course of subsequent immunization to other diseases.

BLOOD COAGULATION TEST BEFORE TONSILLECTOMY —X-RAY EXPOSURE OF THYMUS

To the Editor:—1. Can you give us any information as to the value of blood coagulation test and bleeding time prior to operations, especially operations on the nose and throat? Also, have you any knowledge of which hospitals are doing this as a routine measure? 2. Which hospitals are having all children irradiated for enlarged thymus gland prior to operation and what, if any, value do they attach to this measure?

Vancouver, B. C.

ANSWER.—1. A considerable amount of work has been done in the testing of the coagulation time of the blood as well as of the bleeding time prior to operation. The greater amount of work, however, has been done with the coagulation time and it has been the experience of many that, unless there is a greatly prolonged coagulation time, the usual tests do not give much information regarding the probability of bleeding. Sometimes when the coagulation time is short there is considerable bleeding and vice versa. In many of these cases it is not a matter of the actual coagulation or bleeding time but the fact that large vessels are cut in such a manner that they cannot well retract, as for instance if a part of the wall of a vein is accidentally removed. Some hospitals require a routine test before operations, among these the Memphis Eye, Ear, Nose and Throat Hospital, and a number of hospitals in Chicago, such as the Lutheran Deaconess and the Lutheran Memorial. In many hospitals it is left to the operators themselves to decide whether or not all of their patients must be examined prior to operation. Where there is a greatly prolonged bleeding or clotting time, it is of course advisable to postpone the operation and to use measures to increase the coagulability of the blood. Among these is the use of calcium in large amounts for some days or weeks.

2. We do not know of any hospitals that irradiate all children as a routine for enlargement of the thymus gland prior to operation. Individual surgeons, however, are doing so. It is rather generally believed that infants and children

who have an enlargement of the thymus gland stand anesthesia poorly. Sudden death is frequently attributed to enlargement of the thymus gland. The literature on the subject is interesting in the diversity of opinion. The actual function and relation of this gland are in dispute. More recent observers agree that it is a common condition in the new-born. Peterson and Miller (THE JOURNAL, July 26, 1924, p. 234) report its occurrence in from 40 to 50 per cent of new-born infants. These authors suggest that routine x-ray examination of all new-born infants might be advisable. It is generally agreed that the x-ray offers the best means of diagnosis and treatment. The shadow cast by an enlarged thymus is often characteristic, but cardiac enlargement, large vessels, large glands and tumors must be considered. Many infants with enlargement of the thymus, as demonstrated by the x-ray, do not have any symptoms. Other infants having clinical symptoms show very slight if any enlargement of the gland. Proofs that the thymus is the cause of the clinical syndrome are not positive.

TREATMENT FOR DANDRUFF AND FALLING HAIR

To the Editor:—Please describe fully successful treatment for dandruff and falling hair. Kindly omit name and address.

M.D., New York.

ANSWER.—If the hair is dry, a favorite prescription is the following:

	Gm.	or	Cc.	
Mercuric chloride	0	3		Gr. v
Resorcinol monoacetate, N. N. R.				
Castor oil	6	0		℥ iss
Spirit of formic acid, N. F.	20	0		℥ v
Compound spirit of myrcia, N. F.	ad 120	0		℥ iv

This should be rubbed into the scalp once a day, the fingers being covered with rubber cots to prevent irritation of the tips. The hair should be brushed vigorously with a bristle brush at least once a day. Massage other than these methods is not usually necessary but may be used with discretion. If the hair is greasy, the oil may be omitted. Most patients will object to brushing for fear of greater loss of hair; but it should be explained to them that stimulation of young hair is obtained without loss except of hair already dead. If the condition does not yield to these measures, ointments of sulphur from 5 to 20 per cent, salicylic acid from 2 to 5 per cent, resorcinol monoacetate from 5 to 10 per cent, and oil of cade from 5 to 15 per cent may be used daily.

If the hair is thin, ultraviolet rays in irritative dosage are of benefit, the irritation (which calls for a larger dose) being repeated as soon as the scalp has finished the exfoliation caused by the previous application.

Whatever measures are necessary, they should be persisted in until the loss of hair is reduced to the normal amount. Then milder applications may be sufficient to hold the gain. The scalp should not be neglected, however, no matter how successful the treatment may be, and the patient should be warned that it may be necessary at any time to return to active treatment because of a recurrence. The combings should be counted about once a month, those less than 2 inches in length being separated. If the whole number is excessive, especially if the percentage of short hairs exceeds one eighth of the total number, active treatment is needed. Of course, allowance must be made for hair that is cut short. In this case the roots of the fallen hairs should be examined. If many of them have long root swellings in place of the round knobs seen on healthy hair, the fall is excessive. When an immense number of hairs are lost each day, it may be sufficient to compare the size of the bunch or of combings.

ETIOLOGY OF EDEMA

To the Editor:—A man, aged 50, who had had no previous sickness, began periodically (once in one to three months) five or six years ago to swell up (the hands, feet, legs and face). The swelling remains for three or four days; it does not pit and there is no evidence of cardiac or urinary trouble. The swelling subsides in a day or two, accompanied by a polyuria and extreme weakness. With his last attack he had diarrhea. Can you give me an idea from this meager description of the cause? Kindly omit name.

M.D., Nebraska.

ANSWER.—The extent of the edematous swelling makes a causative connection with a simple angioneurotic disturbance rather doubtful. The underlying cause may be periodic retention of chlorides within the body. This supposition is made more probable by the accompanying diarrhea. At the time of the appearance of the swelling, an estimation of the sodium chloride content of the twenty-four hour urinary output should be done. Normally this should be about 15 Gm.

EFFECTS OF DYNAMITE ON THE BODY

To the Editor:—Please advise me regarding the effect of nitrostarch dynamite made by the Trojan Powder Company of Allentown, Pa., on the human body, especially the heart, of a man working in the mine. Kindly omit name.

M.D., North Carolina.

ANSWER.—This company produces a number of explosives utilizing nitrostarch, or starch nitrate, in varying proportions. In the preparation of all, the starch is nitrated with nitric and sulphuric acids, just as nitrocellulose is prepared from similar acid treatment of cotton. These starch products are thus distinct from other explosives in which glyceryl trinitrate is mechanically mixed with starch to lessen its explosibility.

For mine use a pure nitrostarch is probably never supplied. The nitrostarch explosive best suited for this purpose is obtained by employing approximately 40 per cent nitrostarch, together with ammonium nitrate, sodium nitrate and inert materials to stabilize and reduce sensitiveness. "Military explosives," War Department Document 947, published in 1924, from which brochure our information is derived, states in discussing Trojan Nitrostarch Products that "there is no danger of poisoning of any kind connected with the handling of nitro-starch explosives." In this respect it appears that nitrostarch explosives are superior to glyceryl trinitrate dynamite, which substance in minute quantities is a toxic agent.

Nitrostarch itself is highly inflammable, but in combination with other chemicals, as found in Trojan explosives, it is less sensitive to ignition. When once ignited, especially in any quantity, this substance burns briskly. Combustion of the explosive, rather than detonation, may occur in blasting. Under such circumstances it is likely that nitric oxide and carbon monoxide gases may be formed, both of which are harmful to exposed workers, the degree of harm being dependent on the extent and duration of exposure. When some dynamites fail to explode and instead burn, as much as 48 per cent of nitric oxide may be formed, together with 40 per cent carbon monoxide. Nitric oxides are exceedingly irritating to the respiratory tract, although this action is not apparent at the time of immediate exposure. After a few hours, intense inflammation may occur throughout the respiratory tract, with such later manifestations as pulmonary edema, lobar pneumonia and pulmonary gangrene. In mild cases only a bronchitis may take place. The heart is involved only as it develops in pneumonia or pulmonary gangrene from any other cause. The action of carbon monoxide is so well known as to call for no discussion here. When dynamite detonates, which is usual, the gases formed are less harmful, being largely carbon dioxide and nitrogen.

It is not to be inferred that the severe conditions mentioned are of common occurrence. In general it appears that nitrostarch explosives are less culpable than glyceryl trinitrate explosives as toxic agents.

PATHOLOGIC ANATOMY OF PSYCHOSES

To the Editor:—Is there a definite pathologic anatomy known causing psychoses, neuroses, vocational or otherwise, hysteria, epilepsy, chorea, shell shock and emotional disturbances like rage, fear, fright, and, if so, what is the nature of it?

M.D., New York.

ANSWER.—In approximately 25 per cent of the psychoses in patients admitted to state hospitals there is an underlying structural disease with corresponding pathologic anatomic changes. The diseases are varied and include such conditions as parenchymatous brain syphilis (general paralysis), cerebral arteriosclerosis, senile degenerations, the changes due to poisoning by infectious diseases and exogenous poisons, inflammations of the brain substance (encephalitis), cerebral tumors, and abscesses. The histologic changes peculiar to these conditions are described in most good textbooks. This statement, however, does not mean necessarily that the psychosis itself is due to the pathologic changes directly; the psychosis is the reaction of the patient to the conditions, including the disease from which he is suffering, under which he is placed at the time. The mental states described under the titles delirium and organic dementia are directly due to the brain injury. Apart from these, the psychoses that occur in association with brain injury are forms of behavior and are similar to psychoses (approximately 75 per cent of all psychoses) occurring without demonstrable pathologic change.

Epilepsy is not a disease, but a symptom that may occur in many different diseases; consequently, the pathologic changes will vary with the disease that is present. In the majority of cases listed as essential or idiopathic epilepsy there is no characteristic pathologic change, though degenerative changes are common in various regions of the brain,

notably in the cornu ammonis. Chorea, likewise, is a symptom that may arise in different diseases. The common Sydenham's or rheumatic chorea is probably an infectious disease with localization of the causative organism in the basal ganglions. Chorea, like epilepsy however, may also occur apparently as a functional condition, that is to say as a way of behaving under certain circumstances; in such cases there is no pathologic anatomy.

The neuroses, including hysteria and so-called shell shock, are forms of behavior of the person to the circumstances in which he finds himself—they are not diseases of any particular organ but represent the reaction of the man as a whole to situations that appear to him intolerable. These states are therefore functional and there is no known anatomic change. In recent years, a small minority of the symptom-complexes that have previously been labeled hysteria have been found to be related to encephalitis (epidemic) in the midbrain and are no longer regarded as functional. Rage, fear and fright are also forms of behavior of the man as a whole; they are usually regarded as entirely physiologic. Pathologic changes would therefore not be expected. These forms of behavior illustrate well what is meant by the description of psychoses and neuroses as functional or behavioral reactions of the man as a whole. Even though physiologic, however, there are enormous changes in the temporary mode of functioning of the body organs; an excellent account of some of these changes will be found in the book by Cannon entitled "Bodily Changes in Hunger, Fear, Rage and Pain."

PROCAINE DERMATITIS

To the Editor:—What is the latest treatment for procaine poisoning of the skin? Please omit name.

M.D., Wisconsin.

ANSWER.—The most important thing in handling procaine dermatitis is to discover the fact that it is a dermatitis due to procaine. After that is done the condition will rapidly clear up if contact with procaine or its salts is absolutely prevented. The patients will recover more quickly if, in the acute stages, bland wet dressings, such as the following, are used:

Aluminum subacetate, N. F.	30 cc.
Water	to make 500 cc.

After the acute stage is passed all that is necessary is the use of bland ointments such as cold cream. There is no way to prevent recurrences except strictly to avoid contact with procaine or its salts.

ERYSIPELAS ANTITOXIN

To the Editor:—The query of J. B. D. (THE JOURNAL, December 3, p. 1985) about the status of specific vaccine prophylaxis in recurrent erysipelas might, perhaps, have been better answered by quoting my article entitled "Erysipelas: VI. Immunization with Soluble Toxin from Streptococcus Erysipelatis against Recurrent Attacks of Erysipelas" (THE JOURNAL, March 19, p. 885).

My experience has been that the erysipelas streptococcic antitoxin does not lessen the incidence of recurrent erysipelas. Passive immunity administered in the form of antitoxic serum is rapidly dissipated, either in neutralizing the circulating toxins produced during the acute attack, or, if in excess of this, during the following month. Persons with definite history of recurrent attacks of erysipelas as often as every other month have been rendered actively immune against such attacks by means of intracutaneous injections of the toxin produced by *Streptococcus erysipelatis*, the period of active immunity now exceeding two years and a half. This toxin has not been placed on the commercial market but can be obtained on request from the Bacteriological Department, University of Rochester, Rochester, N. Y.

KONRAD E. BIRKHAUG, M.D., Rochester, N. Y.

MILK FOR INFANT FEEDING

To the Editor:—The doctors in Bridgeport, particularly the pediatricians, usually favor high grade pasteurized milk for their patients. In the nearby smaller towns, the doctors often recommend raw milk. Can you tell me whether high grade pasteurized milk is preferred to high grade raw milk for general use and whether pediatricians in general prefer the pasteurized milk in the artificial feeding of infants?

CARL A. BRANDT, Bridgeport, Conn.

ANSWER.—The production of certified milk, which is the highest grade demanded of raw milk, and the adoption of commercial pasteurization were instituted with a common purpose: to produce milk safe for human consumption. The transmission of disease through milk is generally known. The delivery of clean milk free from pathogenic bacteria to the home is of the utmost importance. Raw milk, that is, unheated milk, is not recommended for feeding infants generally. Even certified milk is heated in either a single or a double boiler when preparing the infant's formula. This procedure has resulted from the observation that infants can take larger amounts of boiled milk without digestive upsets. The curds of heated milk are finer and more easily digested. Heating milk in the home removes largely the fear of contamination in handling commercial milk, be this ever so careful.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALABAMA: Montgomery, Jan. 10-13. Sec., Dr. S. W. Welch, 519 Dexter Ave., Montgomery.

ALASKA: Juneau, March 6. Sec., Dr. Harry C. De Vighne, Juneau.

CALIFORNIA: Los Angeles, Feb. 27. Sec., Dr. Charles B. Pinkham, 623 State Bldg., San Francisco.

CONNECTICUT: New Haven, Feb. 11. Chm., Bd. of Healing Arts, Box 1895, Yale Station, New Haven.

DISTRICT OF COLUMBIA: Washington, Jan. 10. Sec., Dr. E. P. Copeland, 1801 Eye St., Washington.

HAWAII: Honolulu, Jan. 9-12. Sec., Dr. James A. Morgan, Young Bldg., Honolulu.

ILLINOIS: Chicago, Jan. 10-12. Supt., Mr. V. C. Michels, Springfield.

KANSAS: Topeka, Feb. 14. Sec., Dr. Albert S. Ross, Sabetha.

MINNESOTA: Minneapolis, Jan. 17-19. Sec., Reg. Bd., Dr. A. E. Comstock, 636 Lowry Bldg., St. Paul.

NATIONAL BOARD OF MEDICAL EXAMINERS: Class A Medical Schools, Feb. 15-17. Dir., Dr. Everett S. Elwood, 1600 Walnut St., Philadelphia.

NEW HAMPSHIRE: Concord, March 8. Sec., Dr. Charles Duncan, Concord.

NEW YORK: Albany, Buffalo, New York and Syracuse, Jan. 24-27. Sec., Dr. H. Rypins, Education Bldg., Albany.

PENNSYLVANIA: Philadelphia, Jan. 31-Feb. 4. Dir., Mr. C. D. Koch, Harrisburg.

PORTO RICO: San Juan, March 6. Sec., Dr. Diego A. Biascoechea, 3 Allen St., San Juan.

SOUTH DAKOTA: Pierre, Jan. 17. Dir., Dr. H. R. Kenaston, Bonesteel.

VERMONT: Burlington, Feb. 14. Sec., Dr. W. Scott Nay, Underhill.

WASHINGTON: Seattle, Jan. 16. Dir., Reg. Bd., Mr. Chas. R. Maybury, Olympia. Dir., Basic Science Bd., Mr. Chas. R. Maybury, Olympia.

WISCONSIN: Madison, Jan. 10-12. Sec., Reg. Bd., Dr. R. E. Flynn, 315 State Bank Bldg., La Crosse. Sec., Basic Science Board, Prof. M. F. Guyer, U. of Wisconsin.

WYOMING: Cheyenne, Feb. 1-3. Sec., Dr. G. M. Anderson, Citizens Bank Bldg., Cheyenne.

California June Examination

Dr. Charles B. Pinkham, secretary of the Board of Medical Examiners of the State of California, reports the written examination held at San Francisco, June 27-30, 1927. The examination covered 9 subjects and included 90 questions. An average of 75 per cent was required to pass. Of the 116 candidates examined, 107 passed and 9 failed. Fifty-seven candidates were licensed by reciprocity. The following colleges were represented:

PASSED College	Year Grad.	Per Cent
College of Medical Evangelists	(1927)	82.1, 83, 83.1, 85.4, 86.9, 88.6, 90.4
Stanford University School of Medicine	(1927)	77.6, 78, 80.4, 80.7, 80.8, 81.8, 83, 83.7, 83.8, 84.7, 84.9, 85.1, 86.1, 86.7, 87, 87.3, 87.3, 88, 88, 88.1, 88.6, 88.7, 88.7
University of California Medical School	(1926)	85.7, (1927) 76.8, 77, 77.1, 77.2, 78.1, 78.4, 79.7, 79.7, 80.3, 80.6, 81.2, 81.3, 81.4, 81.4, 81.5, 82.2, 82.6, 82.7, 83, 83.1, 83.2, 83.4, 83.9, 84.7, 85, 85.2, 85.2, 85.3, 85.5, 86, 86.2, 86.6, 86.8, 86.8, 86.9, 87.7, 87.8, 88, 88.2, 88.4, 88.7, 89, 90
Loyola University School of Medicine	(1927)	82, 84.2
Northwestern University Medical School	(1927)	80.6
Rush Medical College	(1920)	84.9; (1926) 86.1; (1927) 86.7
University of Illinois College of Medicine	(1917)	84.6, (1927) 76, 76.4
Indiana University School of Medicine	(1926)	85.1
State University of Iowa College of Medicine	(1924)	86.6; (1926) 82.6
Tulane University of Louisiana School of Medicine	(1926)	80.9, 86.2
Harvard University Medical School	(1926)	81.4, 84.6; (1927) 82.6
University of Minnesota Medical School	(1923)	83.9
St. Louis University School of Medicine	(1927, 2)	83.1
Creighton University School of Medicine	(1926)	85.8; (1927) 76
University of Nebraska College of Medicine	(1926)	80.1, 81.3
Columbia University College of Physicians and Surgeons	(1926)	76.3
University of Virginia Department of Medicine	(1926)	79.8
Marquette University School of Medicine	(1922)	77.3
Dalhousie University Faculty of Medicine	(1926)	79.6
McGill University Faculty of Medicine	(1925)	82.8
University of Liverpool, England	(1923)	87.1
National School of Medicine, Mexico	(1918)*	77
University of Leon, Nicaragua	(1914)*	83.3
University of Lausanne, Switzerland	(1923)	75

FAILED College	Year Grad.	Per Cent
College of Physicians and Surgeons, Los Angeles	(1918)	66.3
Chicago Medical School	(1927)	65.8
Northwestern University Medical School	(1927)	73.9
National University of Athens, Greece	(1923)	70.3
University of Rome, Italy	(1916)	59.3

University of Kharkov, Russia	(1898)*	59.4
University of Leningrad, Russia	(1902)*	59.8
University of Moscow, Russia	(1907)*	70.4
University of Tomsk, Russia	(1916)*	65.1

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Colorado School of Medicine		(1926, 2)	Colorado
Emory University School of Medicine		(1926)	Georgia
Northwestern University Medical School		(1903)	Iowa
University of Illinois College of Medicine		(1906) (1907) (1911), (1913)	Illinois Iowa
Ind. Med. College School of Med. of Purdue Univ.		(1906)	Indiana
Drake University College of Medicine		(1911)	Iowa
State Univ. of Iowa College of Homeo. Med.		(1901)	N. Dakota
State Univ. of Iowa Coll. of M.		(1910) (1911) (1918) (1925)	Iowa
University of Louisville School of Medicine		(1912) (1916)	Indiana Kentucky
Baltimore Medical College		(1908)	New York
College of Physicians and Surgeons, Baltimore		(1888)	S. Dakota
Johns Hopkins University School of Medicine		(1905) (1925)	N. Dakota Maryland
University of Maryland School of Medicine and the College of Physicians and Surgeons		(1918)	S. Carolina
Boston University School of Medicine		(1912)	New York
Harvard University Medical School		(1905) (1913)	New Jersey Pennsylvania;
		(1920)	Massachusetts
Detroit College of Medicine and Surgery		(1912)	Michigan
University of Michigan Medical School		(1923)	New York
University of Minnesota Medical School		(1927)	Minnesota
Ensworth Medical College, St. Joseph		(1909)	Kansas
St. Louis Univ. School of Med.		(1913) (1925) (1926, 2)	Missouri
University Medical College of Kansas City		(1891)	Missouri
Washington University School of Medicine		(1925)	Missouri
Creighton University School of Medicine		(1906) (1916)	Nebraska
University of Nebraska College of Medicine		(1902) (1926)	Nebraska
Albany Medical College		(1911)	New York
Cornell University Medical College		(1925)	New York
New York Homeopathic Med. Coll. and Flower Hosp.		(1915)	Iowa
Syracuse University College of Medicine		(1906)	New York
University of Buffalo School of Medicine		(1908)	New York
University of Cincinnati College of Medicine		(1918)	Ohio
University of Oklahoma School of Medicine		(1926)	Oklahoma
University of Oregon Medical School		(1911)	Oregon
Jefferson Medical College of Philadelphia		(1910) (1915)	New Jersey
Medico-Chirurgical College of Philadelphia		(1895)	Penna.
University of Pennsylvania School of Medicine		(1904)	Penna.
Meharry Medical College		(1907) Texas; (1924)	Tennessee
Vanderbilt University School of Medicine		(1913)	Illinois
Medical College of Virginia		(1926)	Virginia
University of Kharkov, Russia		(1921)*	Maryland

Dr. Pinkham also reports that 13 candidates were granted reciprocity certificates after oral examination held Sept. 7, 1927. The following colleges were represented:

Hahnemann Medical College and Hospital, Chicago	(1891)	Missouri
Northwestern University Medical School	(1893)	Illinois
Northwestern University Woman's Medical School	(1896)	Illinois
Rush Medical College	(1900)	Illinois
Keokuk Medical College	(1895)	Iowa
State University of Iowa College of Medicine	(1911)	Iowa
Flint Medical College of New Orleans University	(1904)	Louisiana
College of Physicians and Surgeons, Baltimore	(1911)	Penna.
Tufts College Medical School	(1898)	Mass.
University of Michigan Medical School	(1895)	Michigan
Kansas City Medical College	(1900)	Washington
Omaha Medical College	(1898)	Nebraska
Eclectic Medical College	(1893)	Indiana

* Verification of graduation in process.

South Carolina June Examination

Dr. A. Earle Boozer, secretary of the State Board of Medical Examiners of South Carolina, reports the oral and written examination held at Columbia, June 28-30, 1927. The examination covered 18 subjects and included 80 questions. An average of 85 per cent was required to pass. Thirty-five candidates were examined, all of whom passed. Six candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Howard University School of Medicine		(1919)	80.5
University of Maryland School of Medicine and the College of Physicians and Surgeons		(1927)	89.9
Harvard University Medical School		(1917)	84.7
Medical College of the State of South Carolina		(1910) (1927)	75, 78.7, 79.2, 79.7, 82, 82.4, 82.5, 83.6, 83.7, 84.1, 84.5, 84.9, 85.5, 85.5, 85.7, 85.9, 86, 86.1, 86.6, 87.1, 87.2, 87.4, 87.5, 87.7, 87.9, 88.5, 88.7, 90.5
Meharry Medical College		(1927)	81.1
Vanderbilt University School of Medicine		(1927)	84.4
University of Texas School of Medicine		(1910)	86.9
University of Virginia Department of Medicine		(1926)	81.4

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Atlanta School of Medicine		(1907)	Georgia
Emory University School of Medicine		(1916)	Georgia
University of Georgia Medical Department		(1924)	Georgia
Tulane University of Louisiana School of Medicine		(1919)	N. Carolina
University of Maryland School of Medicine and the College of Physicians and Surgeons		(1926)	Maryland
Grant University Medical Department		(1903)	N. Carolina

Book Notices

THE EAR, NOSE AND THROAT IN GENERAL PRACTICE. An Informal Guide to the Main Principles. By D. A. Crow, M.B., Ch.B., Otolaryngologist, the Royal Sussex, County Hospital, Brighton. Cloth. Price, $3.25. Pp. 150, with 45 illustrations. New York: Oxford University Press, 1927.

This little book, while intended mainly for the general practitioner, will in many ways do well for the specialist in otolaryngologic work. The author believes in the early performance of paracentesis in acute otitis media as a means of preventing deafness or prolonged suppuration. He considers the nose, larynx and ear and lays stress on attention to details and an accurate history. The author definitely gives his indications for the removal of tonsils, and considerable space is devoted to the Waugh method of tonsillectomy. Crow believes that this procedure, while lengthy and requiring attention to many tedious details, has advantages in being bloodless or practically so, in that the pillars are well preserved, and the healing less painful and more rapid. Furunculosis of the ear and nose are discussed as well as diseases of the larynx, including tuberculosis and syphilis of the nose. Proper attention is also given to the symptoms of tinnitus and vertigo. The author discusses the Zuend-Burguet electrophonoide treatment in the reeducation of the ear in cases of deafness that do not yield to ordinary methods. He has been much impressed with the result in a few cases, but has never obtained a high percentage of improvement in the deaf. The monograph is well written and should prove practical.

GONOCOCCAL INFECTION IN THE MALE. By Abr. L. Wolbarst, M.D., Urologist and Director of Urologic Clinics, Beth Israel Hospital. With a chapter written by J. E. R. McDonagh, F.R.C.S., Surgeon, London Lock Hospital. Cloth. Price, $5.50. Pp. 237, with 82 illustrations. St. Louis: C. V. Mosby Company, 1927.

This is a diligently prepared publication dealing with all phases of gonococcus infection in the male. The enthusiastic reports on the efficiency of the silver salts lately placed on the market are not likely to be endorsed by other observers. That the author still recommends the use of diathermic applications in acute gonorrheal urethritis is rather surprising in view of the fact that even the originators of this method are beginning to recant. The rather antiquated Ultzman syringe for posterior medication is recommended, but the Guyon capillary catheter, considered an indispensable instrument by most urologists, is not mentioned. Few surgeons will agree to the suggestion of incising a prostatic abscess through the rectal wall. The chapter on endoscopy is instructive, as was to be expected from an author who spent so much fruitful study on this subject. The treatise covering personal prophylaxis is dictated by the courage of scientific conviction. Chapter XX, written by J. E. R. McDonagh of London, is apt to arouse some consternation among American urologists. Such statements as those to the effect that the infectivity of gonorrhea has been grossly overestimated, that the protein particles of the plasma rob the gonococci of their electricity, or that a prostatic abscess seldom needs incising, because the majority burst spontaneously into the urethra, will hardly be accepted by American scientists.

BRONCHOSCOPY AND ESOPHAGOSCOPY. A Manual of Peroral Endoscopy and Laryngeal Surgery. By Chevalier Jackson, M.D., Sc.D., LL.D., Professor of Bronchoscopy and Esophagoscopy, Jefferson Medical College. Second edition. Cloth. Price, $8 net. Pp. 457, with 189 illustrations. Philadelphia: W. B. Saunders Company, 1927.

The master of bronchoscopy has brought forth here all the essentials of endoscopy. Following a detailed chapter on the instrumentarium used, and the anatomy of the larynx and trachea, he discusses the preparation of patients for endoscopy. The various phases of anesthesia for bronchoscopy and esophagoscopy are described in the author's well known style. Both benign and malignant neoplasms of the respiratory tract as well as the various diseases of the esophagus are considered in a number of chapters. Acute stenosis of the larynx, and tracheotomy form the subjects of the concluding chapters of the book. Then follows a complete bibliography, which impresses one still more with the value of the work which Chevalier Jackson has done. There are innumerable conclusions which are invaluable to the worker in this line and

which have been gleaned as the result of the prodigious experience Chevalier Jackson has had. It is difficult to conceive how a more authoritative work could be written than that which has come from the great bronchoscopist. No one who expects to do any work whatever in endoscopy can afford to proceed without a careful, detailed study of the work of Dr. Jackson and his associates.

X-RAYS AND RADIUM IN THE TREATMENT OF DISEASES OF THE SKIN. By George M. MacKee, M.D., Professor of and Director of the Department of Dermatology and Syphilology, New York Post-Graduate Medical School and Hospital. Second edition. Cloth. Price, $10. Pp. 788, with 385 illustrations. Philadelphia: Lea & Febiger, 1927.

Since the appearance of the first edition of MacKee's book, in 1921, the volume has been considered among the most important contributions made by American dermatologists to the literature of the specialty. A perusal of the second edition strengthens this conviction. The present volume has been enlarged by the addition of about 200 pages and is a thoroughly modernized presentation of the biology and physics of the roentgen ray and radium and their therapeutic application to diseases of the skin. The development of modern roentgen-ray technic with the Coolidge tube, using interrupterless transformers and the indirect method of computing dosage is inseparably linked with the name of MacKee. The method has stood the test of time, it has proved itself safe and adaptable to any interrupterless transformer, and it can be easily applied by even the beginner in roentgenotherapy when checked by biologic effects. The personal equation is all but eliminated. Many physicians scattered throughout the country are today successfully applying the methods they have learned from MacKee. Listed in this volume are more than eighty dermatologic conditions which are more or less amenable to roentgen-ray or radium therapy. Yet the author's conservatism is well shown by such statements as (p. 403):

> Young dermatologists are devoting too much time to physical therapy, to the exclusion of orthodox dermatologic therapy, internal medicine, surgery and the basic medical sciences.

and again

> The dermatologist should possess an adequate knowledge of the possibilities and limitations of cutaneous roentgenology, but it is much more important for him to receive a thorough training in cutaneous diagnosis and cutaneous medicine.

A comparison of the present edition with the first one shows that rapid strides have been made in the evolution of this branch of medicine. The chapter on radium technic has been enlarged and embodies the latest technical advances in radium and radon therapy. Roentgenotherapy has shown perhaps less spectacular changes. The newer methods of measurement with the iontoquantimeter and the roentgenometer are described in detail. There is a new chapter on roentgen-ray spectroscopy, spectrographs and spectrometers by Dr. Kovarik, professor of physics at Yale University, which is somewhat too technical for the average reader. The newest types of roentgen-ray apparatus, including the kenotron rectifier, are described. An appendix considers the most recent method of roentgenotherapy with extremely long wavelengths, the so-called grenz rays, or supersoft rays. The chapters on the clinical application of the roentgen ray and radium have been brought down to date and reflect the author's sustained confidence in the safety and efficacy of his technic. The section on epithelioma correlates the results of other observers and contains some interesting statistical analyses. Reviewing the work as a whole, one is tempted to use superlatives. It is an unusual pleasure to recommend a book in which there is throughout a spirit of enthusiasm coupled with the strictest adherence to scientific accuracy, yet withal tempered with the conservatism, broad-mindedness and modesty characteristic of the author in all his writings.

A MANUAL OF INDIVIDUAL MENTAL TESTS AND TESTING. By Augusta F. Bronner, William Healy, Gladys M. Lowe and Myra E. Shimberg. Cloth. Price, $3.50 net. Pp. 287, with illustrations. Boston: Little, Brown & Company, 1927.

The authors have collected in one volume the details and the technics of individual and group mental tests. They provide also an extensive bibliography and a list of publishers and manufacturers of test material. The book is a convenient and reliable guide.

Books Received

Books received are acknowledged in this column, and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for more extensive review in the interests of our readers and as space permits. Books listed in this department are not available for lending. Any information concerning them will be supplied on request.

TOBACCO AND PHYSICAL EFFICIENCY. A Digest of Clinical Data. [With Annotated Bibliography.] By Pierre Schrumpf-Pierron, M.D., Professor of Clinical Medicine, University of Cairo. Published under the auspices of the Committee to Study the Tobacco Problem. With a foreword by Alexander Lambert, M.D., President. Cloth. Price, $1.85. Pp. 134. New York: Paul B. Hoeber, Inc., 1927.

Résumé of literature proving that tobacco, not apparently harmful in moderation, may bring about injury in excess.

THE SOCIAL BASIS OF CONSCIOUSNESS. A Study in Organic Psychology Based upon a Synthetic and Societal Concept of the Neuroses. By Trigant Burrow, M.D., Ph.D. Cloth. Price, $4. Pp. 256. New York: Harcourt, Brace & Company, Inc., 1927.

Highly involved discussion of man's relationships and their effects on the building of his mentality.

ACTINOTHERAPY FOR GENERAL PRACTITIONERS. By H. G. Falkner, L.R.C.S.I., L.R.C.P.I., L.M., Actino-Therapeutist to the London Teachers' Association. Cloth. Price, $3. Pp. 152, with 36 illustrations. New York: William Wood & Company, 1927.

Another discussion of the clinical uses of ultraviolet rays—and none too critical.

AN INTRODUCTION TO FORENSIC PSYCHIATRY IN THE CRIMINAL COURTS. By W. Norwood East, M.D., Medical Inspector, H. M. Prisons, England and Wales. Cloth. Price, $5. Pp. 381. New York: William Wood & Company, 1927.

The uses of expert testimony in the British courts.

DEMONSTRATIONS OF PHYSICAL SIGNS IN CLINICAL SURGERY. By Hamilton Bailey, F.R.C.S., Surgeon, Dudley Road Hospital, Birmingham. Cloth. Price, $6.50. Pp. 217, with 261 illustrations. New York: William Wood & Company, 1927.

Well illustrated aid to surgical diagnosis.

THE QUEEN CHARLOTTE'S PRACTICE OF OBSTETRICS. By J. Bright Banister, M.D., F.R.C.S., Obstetric Physician, Charing Cross Hospital, Aleck W. Bourne, M.B., F.R.C.S., Obstetric Surgeon to Out-patients, St. Mary's Hospital, Trevor B. Davies, M.D., F.R.C.S., Gynæcological Surgeon, Hospital for Women, Soho, L. Carnac Rivett, M.C., F.R.C.S., Surgeon, Chelsea Hospital for Women, L. G. Phillips, M.S., F.R.C.S., Assistant Surgeon, Hospital for Women, Soho, and C. S. Lane-Roberts, M.S., F.R.C.S., Obstetric Surgeon, Royal Northern Hospital. Cloth. Price, $7. Pp. 629, with 274 illustrations. New York: William Wood & Company, 1927.

HANDBOOK OF DISEASES OF THE EAR: For the Use of Students and Practitioners. By Richard Lake, F.R.C.S., Consulting Surgeon, Royal Ear Hospital, University of London, and E. A. Peters, M.D., F.R.C.S., Surgeon, Royal Ear Hospital, University of London. Fifth edition. Cloth. Price, $4. Pp. 310, with 80 illustrations. New York: William Wood & Company, 1927.

DISEASES OF THE NOSE, THROAT AND EAR. For Practitioners and Students. Edited by A. Logan Turner, M.D., LL.D., F.R.C.S.E., Consulting Surgeon, Ear and Throat Department, Royal Infirmary, Edinburgh, and others. Second edition. Cloth. Price, $6. Pp. 440, with 234 illustrations. New York: William Wood & Company, 1927.

AN ECOLOGICAL STUDY OF SOUTHERN WISCONSIN FISHES. The Brook Silversides (Labidesthes sicculus) and the Cisco (Leucichthys artedi) in Their Relations to the Region. By Alvin Robert Cahn. Illinois Biological Monographs. Vol. XI. No. 1. Paper. Price, $1.50. Pp. 151, with 16 illustrations. Urbana: University of Illinois, 1927.

AFTER THE RAIN: CLEANLINESS CUSTOMS OF CHILDREN IN MANY LANDS. By Grace T. Hallock. Introduction by C. E. A. Winslow, Dr.P.H., Professor of Public Health, Yale School of Medicine. Paper. Pp. 96, with illustrations. New York: Cleanliness Institute, 1927.

AIDS TO BIOCHEMISTRY. By E. Ashley Cooper, D.Sc., F.I.C., A.R.C.S., and S. D. Nicholas, B.A., A.I.C., Lecturers in Chemistry, University of Birmingham Cloth. Price, $1.50. Pp. 188, with 12 illustrations. New York: William Wood & Company, 1927.

A STUDY IN TUBERCLE VIRUS, POLYMORPHISM, AND THE TREATMENT OF TUBERCULOSIS AND LUPUS WITH OLEUM ALLII. By William C. Minchin, M.D. Third edition. Cloth. Pp. 110, with illustrations. London: Baillière, Tindall & Cox, 1927.

FOOD AND THE PRINCIPLES OF DIETETICS. By Robert Hutchison, M.D., F.R.C.P., Physician to the London Hospital. Sixth edition. Cloth. Price, $5. Pp. 610, with 33 illustrations. New York: William Wood & Company, 1927.

"OPIUM." By John Palmer Gavit. With an introductory note for American readers. Cloth. Price, $3.50 net. Pp. 308. New York: Brentano's 1927.

TONIC HARDENING OF THE COLON. By T. Stacey Wilson, M.D., B.Sc., F.R.C.P. Cloth. Price, $2.50. Pp. 210. New York: Oxford University Press, 1927.

Medicolegal

Physicians Not Liable for Reporting Insanity

(Fisher et al. v. Payne et al. (Fla.), 113 So. R. 378)

The Supreme Court of Florida, division B, in affirming a judgment for the defendants, two physicians, says that the plaintiffs were Mrs. Fisher and her husband, each of whom claimed $25,000 damages. The declaration alleged that the defendants, together with one Gonzalez, were by the county judge appointed a committee to examine into the alleged insanity of Mrs. Fisher; that the committee reported that it had found her insane; that the report of the committee "was false, wanton and malicious, in each and every particular, and as a whole"; that on the report the county judge adjudged her to be insane and that she should forthwith be delivered to the superintendent of the Florida State Hospital for care, maintenance and treatment; that she was removed, in obedience to and by virtue of the adjudication of insanity, from her home, and imprisoned in the common jail of the county, after which she was removed to the Florida State Hospital, and there restrained of her liberty, etc.

After the defendants had filed their pleas, the plaintiffs made replication in which it was admitted that it was "true that the report of said committee was relevant, pertinent, and material to the subject-matter of inquiry, as stated in said pleas." A demurrer to the replication was sustained. The demurrer reached back to the sufficiency of the declaration. It may be assumed that the court construed the declaration to state a cause of action for libel. The admission quoted, as contained in the replication, precluded the plaintiffs from recovering a judgment for libel, and thereupon, the plaintiffs declining to plead further, judgment was rendered for the defendants.

There are three causes of action which may have as a primary basis for their existence a written statement, either under oath or otherwise. They are the action for libel, the action for false imprisonment, and the action for malicious prosecution. The declaration in this case, when construed with the replication, did not contain sufficient allegations to state either of such causes of action. A cause of action for libel was not stated, because this court held in *Myers* v. *Hodges,* 53 Fla. 197, 44 So. 357:

> In order that defamatory words, published by parties, counsel or witnesses in the due course of a judicial procedure may be absolutely privileged they must be connected with, or relevant or material to, the cause in hand or subject of inquiry. If they be so published and are so relevant or pertinent to the subject of inquiry, no action will lie therefor, however false or malicious they in fact be.

and the replication in this case admitted that the alleged false report was revelant and pertinent to the subject of inquiry.

A cause of action for false imprisonment was not alleged because the declaration alleged a lawful imprisonment; that is, an imprisonment authorized by a commitment from a court of competent jurisdiction, regular on its face and valid as such order.

The allegations of the declaration were not sufficient to set forth a cause of action for malicious prosecution. There is a class of cases in which an action will lie for the malicious institution of unfounded proceedings where proceedings are taken to have a person declared insane and to have him restrained of his liberty as an insane person. In such cases it appears that the person who is the victim of such proceedings may maintain his action for malicious prosecution, although the result of the inquisition was the commitment of such person to the care and custody of an institution provided for that purpose. One who maliciously, and without probable cause, institutes or procures to be instituted against another an inquisition of lunacy is liable to the latter on his discharge, in an action for malicious prosecution, for all damages suffered by him in excess of the taxable costs of such proceeding. But it was not alleged in the declaration in the instant case that the defendants, or either of them, instituted the proceedings, or that the proceedings were unfounded and without probable cause.

The rule as stated by this court in *Myers* v. *Hodges,* just cited, with reference to defamatory words published by parties, counsel or witnesses in due course of judicial proceedings, this court thinks must be held to apply to commissioners, committeemen and other like functionaries who are lawfully required by the courts of competent jurisdiction to examine persons or things and report their findings to such courts.

Experts Appointed But Not Sworn Entitled to Be Paid

(People ex rel. Hicks et al. v. Berry, City Comptroller (N. Y.), 223 N. Y. Supp. 204)

The Supreme Court of New York, appellate division, second department, affirms, on the opinion of the justice at special term, an order granting a motion for a peremptory writ of mandamus, directing the respondent to pay the claims of the relators for services rendered as expert witnesses for the defense of a man indicted for the crime of murder in the first degree. In the opinion referred to it was stated, among other things, that, prior to the amendment of 1918 of section 308 of the New York code of criminal procedure, it was settled law that claims for services similar to those here could not be allowed because the statute did not authorize the incurring of such expenditure. But by the amendment of chapter 242, laws of 1918, and chapter 433, laws of 1924, the court to which the indictment is presented for trial is given the power to direct the payment of such claims.

It appeared from the papers on this motion that counsel was duly assigned by the court to defend the accused; that it was deemed necessary for a proper defense to employ experts to examine as to his mental condition and to testify on the trial; that the accused was not financially able to employ experts; that thereupon the court made an order authorizing and directing counsel to employ such witnesses in the number sworn or to be sworn by the prosecution, at an expense in the aggregate not to exceed $1,000, and that such expense be made a charge on the county; that thereafter counsel conferred with the district attorney as to the mental condition of the accused, and in order to save the necessity for the attendance of alienists on the trial, unless the mental condition of the accused made that necessary, it was decided that medical experts should be employed by the people and by the counsel for the defendant, and that they should make their examination together and agree if possible prior to the trial whether the accused was sane and knew the nature and quality of his acts and the difference between right and wrong; that thereafter the district attorney employed two physicians, and counsel for the accused employed the two relators; that the four physicians examined the accused on at least two occasions, and conferred on other occasions, and unanimously decided that he was sane, thus making it unnecessary to attend on the trial.

An order was subsequently made by the Queens County court, where the indictment was tried, directing the respondent to pay each of the relators $500. It was contended by the respondent that, because the expert witnesses were not actually called and the court had not certified that there were experts sworn or to be sworn by the prosecution, the relators were not entitled to be paid. But there is nothing contained in the statute requiring such certification. The order directing payment, if supported by sufficient facts, is all that is necessary. Neither does the statute require the witnesses, either for the people or for the defendant, to be actually sworn. It is sufficient if it was intended to have them sworn. It appeared clearly that such was the intention of both the district attorney and the counsel for the accused. But because of the unanimous decisions of the experts as to the sanity of the accused, the defense of insanity was not interposed, and hence it became unnecessary to have such witnesses actually appear at the trial and testify. The fact that the prosecuting attorney did not call his experts as witnesses was not material. Certainly he would not call them, in the absence of the plea of insanity on the part of the defense. Such plea could not be supported after the experts had decided that the accused was sane. It is believed that section 308 was amended to cover a situation such as was presented on this motion.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in America for a period of three days. No foreign journals are available prior to 1921, nor domestic prior to 1923. Periodicals published by the American Medical Association are not available for lending, but may be supplied on order. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested).

Titles marked with an asterisk (*) are abstracted below.

American J. Obstetrics & Gynecology, St. Louis

14: 557-696 (Nov.) 1927

*Rhythmic Contractions and Peristaltic Movement in Intact Human Fallopian Tube. I. C. Rubin, New York.—p. 557.
Coexistence of Carcinoma Fundus Uteri and Pregnancy. E. A. Schumann, Philadelphia.—p. 573.
Carcinoma of Uterine Cervix. H. Schmitz, Chicago.—p. 580.
Prostitution Abroad: Electrocautery Treatment of Gonorrheal Cervicitis and Urethritis. R. L. Dickinson, New York.—p. 590.
Surgical Treatment of Imperforate Anus. L. P. Bell, Woodland, Calif. —p. 603.
Treatment of Contraction Ring Dystocia with Epinephrine. M. P. Rucker, Richmond, Va.—p. 609.
How Shall We Deal with Cancer Menace? G. Fitz-Patrick, Chicago.—p. 616.
Cancer of Uterus following Interposition Operation. J. A. McGlinn Philadelphia.—p. 626.
*Respiratory Emphysema in Labor: Two Cases: Review of 130 Cases. C. A. Gordon, New York.—p. 633.
Office Obstetric Card. H. B. Goodrich, Hannibal, Mo.—p. 647.
Prophylactic External Version. R. A. Bartholomew, Atlanta, Ga.—p. 648.
Clinical Signs of Fetal Distress During Labor. F. C. Freed, New York. —p. 659.

Contractions and Peristalsis of Fallopian Tube.—Rubin asserts that tubal contractions occur in the presence of normal patency. They are totally absent in the dead specimen of the human uterus and tubes. The evidence so far adduced points to the fact that certain conditions influence their character and occurrence. Since tubal contractions depend on ovarian activity, their character changes with the particular phase of the menstrual cycle.

Respiratory Emphysema in Labor.—Subcutaneous emphysema is regarded by Gordon as being a broad term for a rare complication of labor which needs further classification. Respiratory emphysema of labor is suggested as descriptive of the form studied here. Its etiology and pathology are not definitely known, but it may originate in any part of the air passages. Its prognosis is generally good, and its treatment obvious.

American Journal of Ophthalmology, Chicago

10: 807-884 (Nov.) 1927

Thelaziasis of Eye and Adnexa. H. J. Howard, Peking.—p. 807.
Ocular Pemphigus. G. M. Constans, Bismarck, N. D.—p. 810.
Entropium Uveae. A. B. Reese, New York.—p. 818.
Ocular Pathology of New-Born. W. D. Rowland, Boston.—p. 824.
Bacteriology of Normal Conjunctival Sac. H. Lucic, Cheyenne, Wyo.—p. 829.
Relations of Cupping of Optic Disc to Visual Fields in Glaucoma. H. V. Würdemann, Seattle.—p. 831.
Optic Nerve Pallor Without Functional Disturbances in Syphilitic Patients. J. S. Somberg, New York.—p. 837.
Combined Corneal Spud. D. Dean, Grand Rapids, Mich.—p. 843.
Possible Roentgen-Ray Keratitis. G. L. King and G. L. King, Jr. Alliance, Ohio.—p. 843.
Satisfactory Chimney for Use in Retinoscopy. E. M. Blake, New Haven, Conn.—p. 844.

American Journal of Physiology, Baltimore

82: 497-749 (Nov. 1) 1927

Validity of Ethyl Iodide Method for Measuring Circulation. Y. Henderson and H. W. Haggard, New Haven, Conn.—p. 497.
Comparative Measurements of Circulation in Man with Carbon Dioxide and with Ethyl Iodide. R. J. Brocklehurst, H. W. Haggard and Y. Henderson, New Haven, Conn.—p. 504.
*Efficiency of Heart: Significance of Rapid and Slow Pulse Rates. Y. Henderson, H. W. Haggard and F. S. Dolley, New Haven, Conn. —p. 512.
Colloid Properties of Surface of Living Cell: III. Electric Impedance and Reactance of Blood and Muscle to Alternating Currents of 0-1,500,000 Cycles per Second. J. F. McClendon, Minneapolis.—p. 525.
Histamine and Salivary Secretion. M. E. Mackay, Halifax, N. S.—p. 546.
Rate of Passage of Mammalian Ovum Through Various Portions of Fallopian Tube. D. Andersen, Rochester, N. Y.—p. 557.
Determination of Surface Area of Women: Use in Expressing Basal Metabolic Rate. H. S. Bradfield, Columbus, Mo.—p. 570.
*Protein Intake of Medical Students. H. H. Beard, Cleveland.—p. 577.
Effects of Functional Union of Central End of Phrenic Nerve with Peripheral End of Motor Nerve to Sternohyoid Muscle. N. Cordero and A. J. Carlson, Chicago.—p. 580.
Regulation of Respiration: XI. Effect of Changes in Alveolar Oxygen Pressure on Tissue Acidity and Blood Acidity. R. Gesell and A. B. Hertzman, Ann Arbor, Mich.—p. 591.
Id.: XII. Vagal Reflex Control of Respiratory Movements of Isolated Head: Peripheral Mechanical and Peripheral Chemical Factors. A. B. Hertzman and R. Gesell, Ann Arbor, Mich.—p. 608.
*Experimental Cretinism: I. Rachitic-Like Disturbance in Extreme Hypothyroidism. M. M. Kunde and A. J. Carlson, Chicago.—p. 630.
Simultaneous Study of Constituents of Sweat, Urine and Blood; Also Gastric Acidity and Other Manifestations Resulting from Sweating: IV. Ammonia Nitrogen. G. A. Talbert, R. Finkle and D. Katsuki, University, N. D.—p. 639.
Interpretation of Action Potential in Cutaneous and Muscle Nerves. J. Erlanger, St. Louis.—p. 644.
Delay of Blood in Passing Through Lungs as Obstacle to Determination of Carbon Dioxide: Tension of Mixed Venous Blood. W. F. Hamilton, J. W. Moore and J. M. Kinsman, Louisville, Ky.—p. 656.
Central Factors in Hunger. F. Hoelzel, Chicago.—p. 665.
Influence of Starvation on Rate of Secretion of Saliva Elicited by Pilocarpine: Bearing on Conditioned Salivation. N. Kleitman, Chicago. —p. 686.
Effect of Reflex Excitation and Inhibition on Response of Muscle to Stimulation Through Its Motor Nerve. A. Forbes, L. R. Whitaker and J. F. Fulton, Boston.—p. 693.
Effect of Anoxemia on Size of Heart as Studied by Roentgen Ray. E. J. van Liere, Chicago.—p. 727.
Electric Variations as Index of Pancreatic Activity. W. J. German and J. S. Barr, Boston.—p. 733.

Efficiency of Heart.—Henderson and Haggard present data bearing on the circulation and cardiac efficiency in fifty college students, including men taking little exercise, others taking moderate exercise, and athletes engaging in the most strenuous exertion. The circulation of the nonathletic group approximately doubled in passing from rest to exercise; from the basal state to that of exercise it would have been nearly tripled. The circulation of the athletic group tripled in passing from rest to exercise, and the basal circulation would have been quadrupled. The efficiency of the heart is defined as the ratio of the circulation, its volume per minute, to the oxygen requirement of the body. The index of efficiency is the arteriovenous oxygen difference.

Protein Intake of Medical Students.—A study was made by Beard of 400 twenty-four hour urine analyses from male medical students. An average of 11.16 Gm. of total nitrogen was eliminated, which corresponds to 76.7 Gm. of protein per 70 Kg. of body weight, after 10 per cent of protein lost in the feces is added. The protein intake of students in the North and South, per 70 Kg. of body weight, is practically the same.

Rachitic-Like Disturbances in Extreme Hypothyroidism.—Kunde and Carlson present data which show that cretin rabbits (thyroidectomized between two and three weeks after birth) will manifest signs of disturbance in skeletal development which fundamentally simulates clinical rickets. This is not due to a dietary deficiency. This rickets-like condition is accompanied by severe anemia, and is characterized by a normal or slightly below normal concentration of the blood calcium and a low acid soluble phosphorus concentration of the serum.

American J. Public Health, Albany, N. Y.

17: 1109-1207 (Nov.) 1927

Science and Public Health. C. V. Chapin, Providence, R. I.—p. 1109.
Coordination of Official and Volunteer Health Agencies in Knoxville. M. F. Haygood, Knoxville, Tenn.—p. 1117.
Sanitary Construction and Arrangement of Milk Pasteurizing Plants. C. A. Holmquist, Albany, N. Y.—p. 1121.
Practice of Preventive Medicine in Industry. J. A. Turner, Cincinnati. —p. 1125.
Laboratory Testing of Clinical Thermometers as Public Health Problem. F. L. Mickle, S. H. Osborn and C. C. Carson, Hartford, Conn.—p. 1130.
What Official Public Health Agencies Should Do About Cancer. G. A. Soper, G. H. Bigelow and H. F. Vaughan, Boston.—p. 1135.
Psychology of Eating: Effect of Mind on Metabolism: Relation to Autointoxication and Disease. R. E. Humphries, Orange, N. J.—p. 1142.
Nurse-Midwife—Pioneer. M. Breckinridge, Wendover, Ky.—p. 1147.
Preparation of Annual Health Reports. I. V. Hiscock, New Haven, Conn., and C. H. Jones, Baltimore.—p. 1152.

American Journal of Surgery, New York

3: 421-522 (Nov.) 1927

Present Trend of Gynecology. J. O. Polak, New York.—p. 421.
Gynecologic Procedures: From Standpoint of Conservatism. C. J. Miller, New Orleans.—p. 428.
Eclamptic Toxemias: Treatment. E. M. Lazard, Los Angeles.—p. 433.
Kidney in Eclampsia. O. H. Schwarz, St. Louis.—p. 440.
Treatment of Postpartum Hemorrhage. G. L. Brodhead, New York.—p. 449.
*Puerperal Inversion of Uterus. P. Findley, Omaha.—p. 452.
*Extra-Uterine Gestation: Analysis of 120 Cases. C. A. Gordon, New York.—p. 456.
Sterility. A. M. Hellman, New York.—p. 461.
Ureterovaginal and Vesicovaginal Fistulas, Combined. H. D. Furniss, New York.—p. 465.
Factors Influencing Mortality and Morbidity Following Gynecologic Laparotomies. W. R. Cooke, Galveston, Texas.—p. 473.
Submucous Fibroids: Treatment. F. W. Lynch, San Francisco.—p. 480.
Relationship of Imperfect Drainage to Genital Cancer in Female. W. P. Graves, Boston.—p. 489.
Carcinoma of Uterine Cervix. H. Schmitz, Chicago.—p. 494.
Episiotomy and Immediate Postpartum Repair of Both Old and New Perineal Injuries. P. Titus, Pittsburgh.—p. 499.
*Ovarian Cysts Complicating Pregnancy. J. C. Litzenberg, Minneapolis.—p. 506.

Puerperal Inversion of Uterus.—Among 1,932,164 recorded labors reviewed by Findley, complete inversion—one of the rarest of obstetric mishaps—occurred seventeen times, or once in 113,063 cases. The greatest number of inversions occur in the deliveries in the home; under the care of physicians and midwives. Few cases have occurred in maternity hospitals. The mortality ranges from 14 to 26 per cent.

Analysis of Extra-Uterine Gestation.—Among the 120 cases analyzed by Gordon, there were two deaths, one from intraligamentous hematocele with secondary rupture into the peritoneal cavity, and the other from secondary abdominal pregnancy at almost seven months. Death in the first case occurred six hours after operation as a result of shock and added hemorrhage incident to the operative procedure; in the second case, death occurred thirty hours later and was attributed to acute gastric dilatation. The mortality, then, was 1.7 per cent. There were abdominal pregnancies, one ending at term and the other at the seventh month; in both, the history clearly pointed to early rupture of a tubal pregnancy. In five cases rupture occurred at about the sixteenth week, and in nine cases at about the twelfth. In the remaining 104 cases, there was rupture before the eighth week.

Ovarian Cysts Complicating Pregnancy.—Ovarian cysts complicating pregnancy, labor or the puerperium, Litzenberg says, occur less frequently than myomas of the uterus, but they are always dangerous. Unlike the myoma, the presence of a cyst is a distinct menace in itself. Therefore, with very rare exceptions, it should be surgically removed as soon as discovered, whatever its size, location or type.

American Journal of Tropical Medicine, Baltimore

7: 353-418 (Nov.) 1927

*Quinine Prophylaxis of Malarial Infections in Panama Canal Zone. P. E. McNabb and T. H. Stewart, Jr., Washington, D. C.—p. 357.
*Pfeiffer Reaction and Protection Tests in Leptospiral Jaundice (Weil's Disease), with Icterohemorrhagiae and Icteroides. A. W. Sellards and M. Theiler, Boston.—p. 369.
*Relation of Plasmodium Vivax and P. Praecox to Red Blood Cells of Their Respective Hosts. H. L. Ratcliffe, Baltimore.—p. 383.
*Treatment of Parasitic and Other Affections of Intestine by "Intra-Intestinal Thermal Method." D. de Rivas, Philadelphia.—p. 389.
Chemistry of Leprosy Organism: IV. A. Paldrock, Dorpat, Russia.—p. 405.

Quinine Prophylaxis of Malaria.—McNabb and Stewart report that 225 United States engineer troops engaged for four and one-half months in mapping unsanitated sections of the Isthmus of Panama, 106 (47 per cent) contracted malarial infections while taking 15 grains (1 Gm.) of prophylactic quinine daily. On the other hand, while taking this amount of quinine and performing arduous field duty, only fourteen men (6 per cent) developed clinical symptoms of infection, and it was not until completion of the mission and discontinuance of quinine that most of the cases occurred.

Pfeiffer Reaction in Leptospiral Jaundice.—The serum of five patients and one guinea-pig after recovery from leptospiral jaundice (Weil's disease) gave positive Pfeiffer reactions and protected guinea-pigs against *L. icterohemorrhagiae* and *L. icteroides.* A series of titrations showed that these six immune serums were essentially equal in their effects against these two strains of leptospira. Sellards and Theiler state that if the serum of a patient convalescent from an attack of acute infectious jaundice gives positive Pfeiffer reactions with protection of guinea-pigs against either *L. icterohemorrhagiae* or *L. icteroides,* the diagnosis of leptospiral jaundice (Weil's disease) is justified. Negative reactions are consistent with the diagnosis of yellow fever.

Relation of Malaria Parasites to Erythrocytes.—Ratcliffe asserts that the best method of getting a correct picture of the relation of the malarial parasites to the red blood cells is by fixing fresh blood, sectioning it very thin, and studying cross sections of the red blood cells which are parasitized. This has been done with the organisms of avian and human malaria, *Plasmodium praecox* and *Plasmodium vivax,* respectively, and the parasites have been found invariably to be intracellular. The other species of the plasmodia of man have not been available.

Intra-Intestinal Thermal Therapy.—The intra-intestinal thermal therapy by the application of hot salt solution at temperature of from 45 to 47 C. is said by de Rivas to be an efficient and safe procedure for the rapid and complete removal and treatment of protozoan and metazoan parasites inhabiting the large and small intestine of man. The method can likewise be successfully applied for the treatment of ulceration, strictures, intestinal stasis, auto-intoxication, chronic constipation, simple and ulcerative mucus colitis, and other nonparasitic disorders of the large and small intestine.

Annals of Otol., Rhin. & Laryng., St. Louis

36: 883-1202 (Dec.) 1927

Focal Infection and Elective Localization in Pathogenesis of Diseases of Eye. E. C. Rosenow, Rochester, Minn.—p. 883.
Etiology of Focal Infection: Medical Aspects. R. L. Haden, Kansas City, Kan.—p. 896.
Id.: Otolaryngologic Phase. H. W. Lyman, St. Louis.—p. 903.
Mastoid Infection in Infant. G. M. Coates Philadelphia.—p. 913.
Sermon. R. H. Skillern, Philadelphia.—p. 925.
Influence of Paranasal Sinus Infections on Certain Systemic Conditions. L. W. Dean, Iowa City.—p. 933.
Varying Symptomatology of Chronic Maxillary Sinusitis. F. P. Emerson, Boston.—p. 947.
Relation of Pregnancy to Mastoid Infections. H. A. Fletcher, San Francisco.—p. 966.
Visualization of Sinus Drainage. A. W. Proetz, St. Louis.—p. 978.
Paranasal Sinusitis. J. J. Shea, Memphis, Tenn.—p. 991.
Differentiation Between Ophthalmic and Sinus Headaches. R. A. Fenton, Portland, Ore.—p. 1000.
Suppurative Labyrinthitis: Cases. G. W. Mackenzie, Philadelphia.—p. 1019.
Early Metastasis in Tumor of Vocal Cords. A. E. Hertzler, Halstead, Kan.—p. 1078.
Treatment of Hay-Fever in Pacific Northwest. C. T. Chamberlain, Portland, Ore.—p. 1083.
Pyocyanic Stomatitis with Agranulocytic Leukopenia. F. H. Linthicum, Los Angeles.—p. 1093.

Archives of Path. & Laboratory Medicine, Chicago

4: 681-869 (Nov.) 1927

*Waxy Degeneration of Diaphragm: Cause of Death in Pneumonia. H. G. Wells, Chicago.—p. 681.
Resistance of Rabbit Lung to Tuberculosis. R. S. Austin, Cincinnati.—p. 687.
So-Called Small Round Cell Infiltrations: I. Polio-Encephalitis and Acute Epidemic Encephalitis. N. A. Michels and J. H. Globus, New York.—p. 692.
*Pathologic Anatomy of Pertussis. L. W. Smith, Boston.—p. 732.
*Gastro-Intestinal Lymphogranulomatosis. H. C. Hayden and C. W. Apfelbach, Chicago.—p. 743.
Modified Type of Autopsy Table. S. Warren, Boston.—p. 771.
Modified Methylene Azure B Stain for Sections of Human Hematopoietic Organs. M. N. Richter, New York.—p. 773.
Heterophile Antigens and Antibodies. I. Davidsohn, Philadelphia.—p. 776.

Waxy Degeneration of Diaphragm as Cause of Death.—According to Wells, waxy degeneration of the fibers of the muscles of respiration, especially the diaphragm, is usually present in fatal cases of lobar pneumonia. It is also conspicuous in guinea-pigs that have died of anaphylactic asphyxia, and it has been found in fatal cases of human anaphylaxis. Waxy degeneration is known to appear in muscles excessively stimulated and in asphyxiated muscles. Therefore, it seems probable that waxy degeneration of the respiratory muscle in pneumonia is, at least in part, the result of overwork and asphyxia of these muscles, and that this

degeneration of the muscles may be of importance in the production of respiratory failure in pneumonia and in other diseases requiring severe respiratory effort.

Pathologic Anatomy of Pertussis.—A general review of the of the pathologic alterations in whooping cough is presented by Smith. This includes a consideration of both the common and the more unusual complications: the lymphocytosis, the peribronchial thickening, the enlargement of the tracheobronchial lymph nodes, the occurrence of meningeal, conjunctival and other hemorrhages and the rare incidence of subcutaneous emphysema, intussusception and otitis media, caused by the pertussis bacillus. In addition, a more detailed study of the cases coming to autopsy, with a complicating bronchopneumonia, is presented. In this study are discussed the extensive changes in the lung which may be associated with pertussis and infection by bacilli; as observed pathologically, these infections include bronchiectasis, fibrosis and even a pseudometaplasia of the bronchial epithelium from the columnar to the squamous type. An attempt has been made to emphasize the importance of the organism as a primary etiologic factor in the mortality rate.

Gastro-Intestinal Lymphogranulomatosis.—Lymphogranulomatosis, localized chiefly to the gastro-intestinal tract, is being reported with increasing frequency. This disease has not been recognized at necropsy or by clinical examination, except when opportunity arose to examine tissue microscopically. Many of these cases so far described have been confused anatomically with lymphosarcoma, tuberculosis, carcinoma and pseudoleukemia. Twenty-six instances are reviewed by Hayden and Apfelbach and three new cases are described. The gross and microscopic alterations in anatomic structures and the clinical manifestations are summarized.

Atlantic Medical Journal, Harrisburg, Pa.

31: 47-140 (Nov.) 1927

Selection of Cases Suitable for Radiation. W. H. Cameron, New York.—p. 47.
Use of Radium in Gynecology. F. E. Keene, Philadelphia.—p. 50.
Radium in Dermatology. W. H. Guy, Pittsburgh.—p. 52.
Rôle of Spleen in Health and Disease. T. Fitz-Hugh, Jr., Philadelphia.—p. 54.
Splenectomy in Anemias of Childhood. J. C. Gittings and J. Stokes, Jr., Philadelphia.—p. 56.
Indications for Splenectomy. G. P. Müller, Philadelphia.—p. 59.
Anesthesia in Surgery of Bladder. W. S. Pugh, New York.—p. 65.
Periarterial Sympathectomy for Femoral Claudication. A. C. Morgan, Philadelphia.—p. 69.
Management of Heart in Pulmonary Tuberculosis. S. A. Sayitz, Philadelphia.—p. 71.
*Unusual Result from Simple Enema. C. P. Henry, Reading, Pa.—p. 72.

Enema Causes Fatal Cardiac Embolism.—Two weeks after a suprapubic cystostomy was performed under nitrous-oxide anesthesia by Henry, an orderly gave the patient, aged 72, a simple soap-water enema. He suddenly gave a gasp and ceased to breathe. The autopsy showed that the pressure of the water dislodged some blood clots in the prostatic venous plexus, and that the patient died of an embolism in the right side of the heart.

Canadian M. Association Journal, Montreal

17: 1285-1414 (Nov.) 1927

*Hemorrhage in Pregnancy. J. D. McQueen, Winnipeg, Man.—p. 1285.
Effect of Anesthetics on Body as Whole. W. Webster, Winnipeg, Man.—p. 1290.
*Chronic Glycosuria, Probably of Extrapancreatic Etiology. E. H. Mason and R. A. Flack, Montreal.—p. 1294.
*Consecutive Herpes Zoster and Varicella with Varicella in Contact. D. E. H. Cleveland, Vancouver, B. C.—p. 1299.
Cardiac Cripple. C. W. Hurlburt, Edmonton, Alta.—p. 1305.
Specific Duties of Medical Officers of Health in Dealing with Communicable Diseases. II. J. Roberts, Hamilton, Ont.—p. 1309.
Application of Gaseous Anesthetics in Some Unusual Types of Operations and in Patients with Unusual Complications. E. I. McKesson, Toledo, Ohio.—p. 1314.
Commercial Pharmaceutic Preparations: 4. Hydrastis — Golden Seal. H. M. Lancaster and A. L. Davidson, Ottawa.—p. 1317.
*Use of Parathormone in Treatment of Infantile Tetany. D. B. Leitch, Edmonton, Alta.—p. 1321.
Football Injuries of Knee Joint. L. J. Austin and W. A. Campbell, Kingston, Ont.—p. 1324.
*Rodent Ulcer. A. H. Pirie, Montreal.—p. 1326.
Radiologic Study of Appendix. W. H. McGuffin, Calgary, Alta.—p. 1329.
Cholesterol Content of Blood of Infants and Children. A. Goldbloom and R. Gottlieb, Montreal.—p. 1333.
Hereditary Abnormalities of Eye: VI. Defects Involving Retina. M. T. Macklin, London, Ont.—p. 1336.
Electric Burns and Electric Shock. R. E. Gaby, Toronto.—p. 1343.
Resuscitation After Electric Shock. W. Maclachlan, Toronto.—p. 1346.
Physician and Druggist. R. E. Harrison, Lamont, Alta.—p. 1350.
*Blood Cultures in Acute Rheumatic Fever. R. Lynch, Pittsburgh.—p. 1352.
Sarcoma of Stomach: Hydatid Cyst of Liver: Hydrosalpinx. R. H. L. O'Callaghan, Calgary, Alta.—p. 1353.
Goiter and Pregnancy. J. R. Dean, Elnora, Alta.—p. 1355.
Blood Transfusion in Empyema. D. McLellan, Vancouver, B. C.—p. 1356.
Severe and Extensive Burn Treated with Solution of Tannic Acid. J. Hunter, Toronto.—p. 1357.
William Hunter's Anatomy of Human Gravid Uterus. R. Mitchell, Winnipeg.—p. 1379.
Differing Opinions. W. H. Hattie, Halifax, N. S.—p. 1383.
Meaning and Methods of Success. H. Rolleston, London.—p. 1385.
Bionomics of Animal Reproduction in Relation to Tumors and Cancers. J. Bland-Sutton, London.—p. 1387.

Hemorrhage in Pregnancy.—In a review made by McQueen of 2,000 consecutive cases admitted to the public wards of the Winnipeg General Hospital prior to March 31, 1927, nine cases were found, an incidence of one in 220, in which a diagnosis of accidental hemorrhage had been made. In these cases the average age was 33 years, while the number of previous pregnancies was slightly more than five. In six, gestation had been in progress for thirty-five weeks or more. In only one was albumin found in the urine, and not one showed increased blood pressure. In one there was a doubtful history of trauma, while in another a short cord was the cause of premature separation of the placenta. External hemorrhage was present in all cases, in six being recorded as profuse. In only one was the patient's condition considered alarming. Abdominal pain and a tender uterus were noted in only one case. Conservative methods of treatment were used, including sedatives and fluids intravenously when considered necessary, rupture of the membranes and a tight abdominal binder. Two patients received uterine stimulants ante partum. There were no maternal deaths and four children survived. In this series of 2,000 cases, placenta praevia occurred sixteen times.

Chronic Glycosuria.—A case of glycosuria, observed over a period of ten years, which fails to comply with the fundamental conception of true diabetes mellitus, is reported by Mason and Flack. A hypothesis is advanced which is compatible in the main with the facts as they have been determined. This accounts for the disturbance through increased glycogenolysis of the liver glycogen, possibly through increased sympathetic stimulation, and independently of any pancreatic disturbance.

Consecutive Herpes Zoster and Varicella.—A case is described by Cleveland in which herpes zoster in an adult is followed after a lapse of time corresponding to the incubation period of varicella by an outbreak of typical varicella in the daughter of the patient, who, as far as could be determined, had not been exposed to other cases of varicella. After a further similar period the patient with zoster, who had never had varicella, developed a generalized rash showing lesions typical of varicella, accompanied by lesions in the lower extremities resembling erythema nodosum. This case is offered as furnishing strong evidence in favor of the theory of a common origin for varicella and a certain proportion of all cases of herpes zoster.

Parathyroid Extract in Infantile Tetany.—Eight cases of infantile tetany are reported by Leitch in which parathyroid extract-Collip given subcutaneously at daily intervals increased the serum calcium and likewise exerted a beneficial effect on the tetany.

Roentgenotherapy of Rodent Ulcer.—To effect a cure of rodent ulcer by one roentgen-ray treatment, Pirie asserts, is the ideal form of treatment, but in some cases many treatments may be required before good results are obtained. Nodules at the edge of a healed rodent ulcer indicate that the disease is still present. Pirie speaks of several varieties of rodent ulcer; the senile, the multiple, the creeping, the large-pored, the unbroken basal-cell epithelioma, the too extensive for cure, and the typical rodent ulcer.

Bacteriology of Acute Rheumatic Fever.—Attempts made by Lynch to demonstrate a bacteremia in fifteen cases of acute rheumatic fever were not successful.

Johns Hopkins Hospital Bulletin, Baltimore

41: 241-310 (Nov.) 1927

*Glandular Elements in Posterior Lobe of Human Hypophysis. D. Lewis and F. C. Lee, Baltimore.—p. 241.
Cerebral Cicatrix: Reaction of Neuroglia and Microglia to Brain Wounds. P. Del Rio-Hortega and W. Penfield, Madrid.—p. 278.

Glandular Elements in Hypophysis.—From a study of complete serial sections of thirty human hypophyses from subjects varying in age from birth to 73 years, as well as from the examination of many other individual sections, glandular tissue was found by Lewis and Lee at all ages in the posterior lobe. A brief discussion of the relation of these glandular structures to each other and to the physiology of the posterior lobe is given.

Journal of Laboratory & Clinical Medicine, St. Louis

13: 101-200 (Nov.) 1927

*Superior Cervical Sympathetic Ganglion in Angina Pectoris. S. L. Clark, St. Louis.—p. 101.
*Hypoglycemia With and Without Insulin: With and Without Symptoms. B. I. Ashe and H. O. Mosenthal, New York, and G. Ginsberg, Hoboken, N. J.—p. 109.
Relation Between Cardiac Reactions to Drugs and *p*H of Blood: II. Mercury. W. Salant and J. E. Nadler, Augusta, Ga.—p. 117.
Hemolytic Properties of Autolysis Products of Gastro-Intestinal Mucosa in Connection with Problem of Pernicious Anemia. B. S. Cornell, Baltimore.—p. 124.
*Complement-Fixation Reactions, Using Antigens Prepared from Autolysis Products of Stomach, Duodenum and Other Organs: Special Reference to Pernicious Anemia Blood. B. S. Cornell, Baltimore.—p. 128.
So-Called Dibrom-Oxymercury-Fluorescein Sodium Salt (Mercurochrome-220 Soluble). B. Salkin, New York.—p. 130.
Calcium and Glucose Tolerance in Diabetes Mellitus. I. M. Wishnofsky. New York.—p. 133.
Colorimetry. J. H. Yoe, Charlottesville, Va.—p. 139.
Quantitative Determination of Kahn Reaction. J. G. Hopkins and E. W. Rockstraw, New York.—p. 146.
Basal Metabolism: X. Simplified Data Blank for Gasometer Gas Analysis Method. W. H. Stoner, Philadelphia.—p. 164.
Estimation of Plasma Chlorides. A. E. Osterberg and E. V. Schmidt, Rochester, Minn.—p. 172.
Modifications of Haldane Gas Analysis Apparatus. V. du Vigneaud, Rochester, N. Y.—p. 175.
Constitutional Reaction in Hay-Fever Therapy. H. S. Bernton, Washington, D. C.—p. 181.
Modification of Brown Apparatus for Colorimetric Determination of *p*H. W. H. Wright and H. G. Harding, Madison, Wis.—p. 182.

Superior Cervical Sympathetic Ganglions in Angina Pectoris.—A histologic study was made by Clark of the ganglions from seven patients. No changes specific for angina pectoris were demonstrated. The relief from anginal pain obtained by removal of the ganglion has not yet been explained satisfactorily.

Studies on Hypoglycemia.—Ashe et al. report three patients with low blood sugar, two with the symptoms usually associated with hypoglycemia, and induced by insulin. The other patient was free of such symptoms and had never had insulin.

Studies on Complement Fixation Reaction.—Cornell states that the serum of patients with pernicious anemia, syphilis and tuberculosis occasionally give a positive complement fixation reaction when an antigen prepared from the autolysis products of various organs is used. The significance of this reaction is quite obscure, and probably depends on physicochemical factors of no practical importance.

Journal of Nervous & Mental Disease, New York

66: 449-584 (Nov.) 1927

Brachial Plexus Obstetric Paralyses. V. Giliberti, New York.—p. 449.
Evolution of Encephalitic Dystonia into Hypertonic-Akinetic Syndrome Resembling Wilson's Progressive Lenticular Degeneration. S. Brock and S. Katz, New York.—p. 460.
Lesions of Epiconus. B. J. Alpers, Philadelphia.—p. 468.
Familial Form of Diffuse Periaxial Encephalitis. A. Ferraro, New York.—p. 479. (To be cont'd.)

Journal of Pharmacol. & Exper. Therap., Baltimore

32: 1-79 (Nov.) 1927

*Elimination of Nicotine in Milk. R. A. Hatcher and H. Crosby, New York.—p. 1.
Regional Gradients in Epinephrine Response of Turtle Heart. T. N. Rossides and T. Sollmann, Cleveland.—p. 7.
Effects of Epinephrine on Auricular Tonus Waves of Turtle Heart. T. Sollmann and T. N. Rossides, Cleveland.—p. 19.
*Bismuth Subnitrate in Therapy of Hypertension. E. J. Stieglitz, Chicago.—p. 23.
Seat of Emetic Action of Digitalis Bodies. R. A. Hatcher and S. Weiss, New York.—p. 37.
Effects of Calcium, Barium and Potassium on Cardiac Output of Normal Dogs. T. R. Harrison, C. Pilcher and C. P. Wilson, Nashville, Tenn.—p. 55.
Spreading and Absorption of Different Types of Bismuth Preparations, Introduced by Intramuscular and Subcutaneous Injection. W. F. von Oettingen, T. W. Todd and T. Sollmann, Cleveland.—p. 67.

Effect of Nicotine on Milk Secretion.—According to Hatcher and Crosby, large doses of nicotine suppress the secretion of milk in the cat and the cow for longer periods than those required for the elimination of the greater part of the poison from the body.

Bismuth Subnitrate in Therapy of Hypertension.—Approximately 140 cases of hypertension were treated by Stieglitz with bismuth subnitrate, from 5 to 9 grains (0.32 to 0.6 Gm.), three or four times a day. After or during the search for and removal of definite sources of intoxication and vascular injury, the bismuth subnitrate has proved to be a valuable auxiliary. Prophylactically, bismuth subnitrate is of value in hypertension in pregnancy, other than acute eclampsia. Clinical data in summary and detail are presented to support these statements.

Journal of Preventive Medicine, Baltimore

1: 503-551 (Nov.) 1927

*Common Infectious Diseases in Brazil. J. A. Doull, Baltimore, M. J. Ferreira and D. Parreiras, Rio de Janeiro.—p. 503.
*Results of Schick and Dick Tests in Rio De Janeiro. J. A. Doull, Baltimore, M. J. Ferreira and D. Parreiras, Rio de Janeiro.—p. 513.
*Relation of Dick Test to Prevalence of Scarlet Fever in Grand Lebanon. L. W. Parr and M. S. Avery, Beirut, Grand Lebanon.—p. 529.
Hookworm Infestation in Unsanitated District, After Intensive Treatment Campaign. R. B. Hill.—p. 537.

Common Infectious Diseases in Brazil.—The area with which this paper is principally concerned is that of Rio de Janeiro and vicinity. In this locality the result of inquiries by Doull et al. among school children and other groups concerning the prevalence of measles, whooping cough and chickenpox shows in general close agreement with similar studies in certain North American areas. Great differences, however, are found in the incidence of diphtheria and scarlet fever, a very small proportion of persons in the Brazilian survey giving a history of an attack of these diseases. These results are in conformity with other observations on the prevalence of these diseases in tropical areas, the evidence collected indicating that in recent years measles, mumps and whooping cough have been common, diphtheria infrequent and scarlet fever rare.

Results of Shick and Dick Tests in Rio de Janeiro.—Although the prevalence of clinically recognizable forms of diphtheria and scarlet fever is very much lower in Rio de Janeiro than in cities of the United States, the prevalence of specific antitoxic immunity, on the other hand, is much higher in Rio than in cities of the United States. If the immunity found is interpreted as being due to previous specific infection, it follows that infection with the specific microorganism is not less common but more common in Rio de Janeiro than in large cities in the United States.

Prevalence of Infectious Diseases in Grand Lebanon.—The reported morbidity from scarlet fever in Grand Lebanon per 10,000 inhabitants is only 0.012 per cent for the period covered from 1921 to 1924, inclusive, and from 1926 to 1927. Among 628,870 of population there were only four cases. As to the relative frequency of scarlet fever, diphtheria, typhoid, smallpox and measles (scarlet fever being taken as 1), the figures reported by Parr and Avery are: scarlet fever, 1; diphtheria, 14.5; typhoid, 284.5; smallpox, 133.75; measles, 782.75. Of forty-seven children born and raised in the Armenian refugee camp in Beirut, there were only six (12.7 per cent) who were Dick positive.

Journal of Urology, Baltimore

18: 433-595 (Nov.) 1927

Urologic Problems in Infancy and Childhood. H. L. Kretschmer, Chicago.—p. 433.
Case of Ruptured Hydronephrosis. L. Herman, Philadelphia.—p. 458.
Prostatic Calculi. B. A. Thomas and J. T. Robert, Phialdelphia.—p. 470.
Primary Tuberculosis of Prostate. A. E. Bothe, Philadelphia.—p. 494.
Wassermann Reaction: Kolmer Modification. J. A. Kolmer, Philadelphia.—p. 503.
Caudal Anesthesia. D. F. Bentley, Jr., Camden, N. J.—p. 517.

New Universal Urethroscope. L. E. McCrea, Philadelphia.—p. 521.
Phosphaturia from Chemical Point of View. H. Leffmann, Philadelphia.—p. 524.
Nocturnal Enuresis Successfully Treated by Fulguration. B. A. Thomas, Philadelphia.—p. 527.
Enormous Solitary Cyst of Kidney Associated with Pyonephrosis. B. A. Thomas, Philadelphia.—p. 528.
Successful Nephrectomy for Tuberculosis in Which Bilateral Exploration was Necessary. B. A. Thomas, Philadelphia.—p. 530.
Bilateral Hypernephroma. W. H. Kinney, Philadelphia.—p. 533.
*Pyelitis in Pregnancy. B. C. Corbus and W. C. Danforth, Evanston, Ill.—p. 543.
Id.: Its Treatment with Indwelling Catheter. W. S. Pugh, New York.—p. 553.
Stricture Formation in Ureter Following Pyelonephritis of Pregnancy. E. G. Crabtree, Boston.—p. 575.

Pyelitis in Pregnancy.—The assertion so often made that the termination of pregnancy cures the pyelitis is shown not to be true by Corbus and Danforth. In their thirteen cases, abnormal changes remained in the urinary tract after the termination of pregnancy and could be demonstrated as hydronephrosis, hydro-ureter and ureteral stricture. Bilateral pathologic changes were found to be present in each case.

Laryngoscope, St. Louis

37: 783-850 (Nov.) 1927

Tissue Changes in Nasal Mucosa. H. P. Finck, Boston.—p. 783.
Agranulyocytic Angina. V. K. Hart, Statesville, N. C.—p. 798.
Facial Paralysis Accompanying Acute Mastoiditis in Diabetic Patient. A. Greenstein, New York.—p. 799.
Epidemic of Acute Otitis Media Characterized by Positive Gaseous Pressure Within Tympanum. V. V. Wood, St. Louis.—p. 803.
Diabetis Mellitus, Acute Coalescent Mastoiditis, Perisinus Abscess, a-Symptomatic, a-Bacterial and Obliterating Thrombophlebitis of Sigmoid Sinus. M. J. Gottlieb, New York.—p. 806.
Labyrinthine Findings in Two Cases of Posterior Fossa Tumors. R. Almour, New York.—p. 810.
Relation of Progressive Deafness to Environment. D. C. Jarvis, Barre, Vt.—p. 815.
Light Therapy in Otolaryngology. M. Weisblum, Philadelphia.—p. 823.
Reverse Tracheotomy. M. J. Mandelbaum, New York.—p. 827.
Open Safety Pin in Stomach, Then Point Downward in Esophagus: Removal. S. Iglauer, Cincinnati.—p. 839.
Auto-Expulsion of Foreign Body from Stomach. H. B. Orton, Newark, N. J.—p. 843.
Identical Hearing in Identical Twins. D. Macfarlan, Philadelphia.—p. 846.

Military Surgeon, Washington, D. C.

61: 685-838 (Dec.) 1927

Medical Training Camps: Then and Now. C. E. Frazier.—p. 728.
Man and Machine. M. Flack.—p. 758.
United States Army Ration. F. E. Gessner.—p. 767.

New Jersey Medical Society Journal, Orange

24: 603-672 (Nov.) 1927

Safe and Effectual Anesthesia for Thyroidectomies. G. P. Pitkin, Teaneck.—p. 603.
Intern's Laboratory Service. R. A. Kilduffe, Atlantic City.—p. 611.
Digestive Diseases. M. E. Rehfuss, Philadelphia.—p. 614.
Functional Restoration in Repair of Facial Injuries. J. E. Sheehan, New York.—p. 618.
Physical Therapy. S. T. Snedecor, Hackensack.—p. 621.
Otitis Media Complications. A. Spencer, Dover.—p. 622.
Id.: Mastoiditis. R. H. Matthews, Morristown.—p. 624.
Id.: Complications of Mastoiditis. E. B. Sutphen, Morristown.—p. 627.

Northwest Medicine, Seattle

26: 527-578 (Nov.) 1927

Maternal Morbidity and Mortality. F. L. Adair, Minneapolis.—p. 527.
Toxemia of Later Months of Pregnancy: Its Prophylaxis and Treatment. R. D. Mussey, Rochester, Minn.—p. 535.
Stricture of Female Urethra. J. G. Cheetham, Portland, Ore.—p. 539.
Value of Roentgenogram in Pelvimetry. A. J. Coats, Boise, Idaho.—p. 542.
Granuloma Inguinale: Contracted in United States. T. W. Ross and R. T. Kaupp, Portland, Ore.—p. 543.
Enuresis in Male. D. D. Donahue, Eugene, Ore.—p. 549.
Positions of Gastro-Enteric Viscera. F. E. Diemer, Denver.—p. 552.
Visceral Pain. W. K. Livingston, Portland, Ore.—p. 554.
Acute Cervical Adenitis. J. L. Holzman, Portland, Ore.—p. 557.
Encephalocystocele. J. C. O'Day, Honolulu.—p. 561.

Oklahoma State M. Association Journal, Muskogee

20: 297-322 (Nov.) 1927

Management of Acute Gonorrhea in Male. H. S. Browne, Tulsa.—p. 297.
Diagnosis and Treatment of Chronic Gonorrhea and Some Complications in Male. E. Moore, Oklahoma City.—p. 298.
Roentgen-Ray Examination of Urinary Tract. E. C. Wilson, Oklahoma City.—p. 302.
Pyelography. S. D. Neely, Muskogee.—p. 307.

Public Health Reports, Washington, D. C.

42: 2763-2830 (Nov. 11) 1927

Microscopic Changes of Tularemia in Tick (Dermacentor Andersoni) and Bedbug. E. Francis, Washington, D. C.—p. 2763.

42: 2831-2892 (Nov. 18) 1927

*Endemic Goiter in Oregon. R. Olesen, Cincinnati.—p. 2831.

Endemic Goiter in Oregon.—The thyroid survey made by Olesen in Oregon included 8,181 boys and 9,427 girls attending the senior and junior high schools and the upper grades of the grammar schools in thirty-two localities. A total of 5,443 enlargements of the thyroid, a percentage of 30.9, was noted among the 17,608 children examined. Thyroid enlargements of all degrees prevailed among the boys to the extent of 22.3 per cent, and among the girls to the extent of 38.3 per cent. The observation previously made that thyroid enlargements decrease in number as boys increase in age, while among girls the involvements continue to increase in number up to the age of 18, was sustained by the survey. Endemic goiter is present to a considerable extent in the seacoast towns of Oregon, mere proximity to the ocean apparently failing to confer the relative freedom from the disease which prevails on Cape Cod, Massachusetts. At the same time there is much less goiter in the seacoast towns in Oregon than in the cities and towns farther inland. The places of birth and the places of previous residence are factors which do not appear to enter into the question of thyroid status among the children of a given community in Oregon. There appears to be no relationship between the amount of goiter in a given community in Oregon and the treatment of the public water supplies by filtration and chlorination. Endemic goiter prevails to a considerable extent in most portions of the state of Oregon. There is much less goiter in Oregon than in Minnesota, approximately the same amount as in Cincinnati, and much more than in Connecticut and Massachusetts. Olesen suggests the probability that iodine prophylaxis has materially altered the usual incidence of goiter in many localities. It may no longer be possible to determine natural goiter rates.

Radiology, St. Paul

9: 451-556 (Dec.) 1927

Anatomic and Postural Variations of Lumbosacral Spine. E. H. Skinner, Kansas City, Mo.—p. 451.
Roentgen-Ray Diagnosis of Bone Tumors. E. L. Jenkinson, Chicago.—p. 453.
Concentration of Cholecystographic Mediums and Bilirubin by Gallbladder. B. R. Kirklin, H. D. Taylor and J. L. Bollman, Rochester, Minn.—p. 463.
Roentgen-Ray Diagnosis of Malignant Neoplasms of Lung. I. S. Hirsch, New York.—p. 470.
*Epiphyseolysis. M. A. Bernstein and R. A. Arens, Chicago.—p. 497.
Possible Developmental Defects Following Over-Radiation of Thymus in Early Infancy. G. H. Hess, Uniontown, Pa.—p. 506.
Case of Thymoma. M. F. Dwyer, Seattle.—p. 510.
Thoracic Aneurysm: Case. R. C. Pendergrass and J. J. Clark, Atlanta, Ga.—p. 512.
Diverticulum of Second Portion of Duodenum: Case. A. Cassar, Alexandria, Egypt.—p. 515.

Epiphyseolysis.—Spontaneous separation of the hip, or, as Bernstein and Arens propose to call it, epiphyseolysis, is said to be due to a constitutional disturbance, perhaps of endocrine origin. A slight injury to the hip with gradually developing disability should lead one to suspect the presence of this condition. The roentgen ray confirms the diagnosis of the condition. Separation of the epiphysis of the hip may be associated with epiphysitis elsewhere, as in the knee joint. The authors believe that vertebral epiphysitis, infarction of the metatarsal head and Osgood's disease belong to the same group and probably have the same etiologic factor.

West Virginia Medical Journal, Charleston

23: 609-660 (Dec.) 1927

Pernicious Anemia. D. A. MacGregor, Wheeling.—p. 609.
Formation of Gallstones. J. E. Sweet, New York.—p. 617.
Tonsilloliths. E. C. Hartman, Parkersburg.—p. 619.
Importance of Early Diagnosis of Foreign Bodies in Air and Food Passages. A. Hoge, Wheeling.—p. 622.
Cornea. E. B. Heckel, Pittsburgh.—p. 627.
Two Cases of Hydatiform Mole. L. D. Howard, Fairmont.—p. 631.
Facial Types and Facial Asymmetry. H. V. King, Morgantown.—p. 634.
Esophagoscopy. W. F. Zinn, Baltimore.—p. 636.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British J. Dermatology & Syphilis, London

39: 435-484 (Nov.) 1927

Exfoliative Dermatitis. H. D. Haldin-Davis.—p. 435.
Id. G. H. Lancashire.—p. 446.
*Pemphigus: Blood Transfusion. L. Hollander.—p. 450.

Blood Transfusion in Pemphigus.—In the treatment of pemphigus, direct blood transfusion with whole blood, from 500 to 600 cc., is carried out by Hollander at weekly intervals and repeated from three to six times. Six cases are reported. Marked improvement in the general and the skin condition followed in five of the six cases. There was marked improvement in the skin condition in the sixth case, but death occurred from an intercurrent acute infection.

British J. Experimental Pathology, London

8: 343-412 (Oct.) 1927

*Coagulation Time of Blood During Anesthesia. M. Rabinovich.—p. 343.
Pathologic Changes in Tissues During Attempted Acclimatization to Alterations of Oxygen Pressure in Air. J. A. Campbell.—p. 347.
*Systemic Factors in Genesis of Tar Cancer L. Kreyberg.—p. 352.
*Physiologic Aspects of Intraperitoneal Blood Transfusion. D. Levi.—p. 355.
*Influence of Serums Obtained from Cases of Streptococcal Septicemia on Virulence of Homologous Cocci. E. W. Todd.—p. 361.
Electrical Behavior of Bacteriophage. C. Todd.—p. 369.
Tetanus: V. Local Fate of Spores Inoculated in Guinea-Pigs. D. S. Russell.—p. 377.
Id.: VI. Conditions Under Which Spores Germinate in Vivo. P. Fildes.—p. 387.
*Id.: VII. Treatment by Large Intrathecal Doses of Antitoxin. H. Florey and P. Fildes.—p. 393.
Adhesion Phenomenon as Aid to Differentiation of Leptospira. H. C. Brown and L. J. Davis.—p. 397.
*Application of Ramon Flocculation Test to Toxin and Antitoxin of Streptococcus Scarlatinae. G. H. Eagles.—p. 403.

Coagulation Time of Blood During Anesthesia.—In an attempt to elucidate the causes of pulmonary embolism following operation, Rabinovich investigated the coagulation time of blood during the operation. In operations under closed ether anesthesia there is a diminution in the coagulation time of blood in 80 per cent of cases investigated, reaching up to 40 per cent of the initial coagulation time. The diminution is already present during the initial stages of the operation of 75 per cent of cases, and seems to be independent of the type of operation or duration of the anesthesia. Subcutaneous injection of ether is followed in a majority of cases by an increased coagulability of the blood within half an hour. The coagulation time diminishes slightly with advancing age, within the limits of the data obtained. The increased coagulability does not increase with advancing age, and is not greater in cases involving the opening of the abdomen.

Systemic Factors in Genesis of Tar Cancer.—Experimental evidence is presented by Kreyberg which indicates that tar, directly or indirectly, through a systemic factor, influences the skin of white mice, with the result that the incidence of tumor after a certain local insult is increased.

Physiologic Aspects of Intraperitoneal Blood Transfusion.—Levi is inclined to believe that the immigration of cells from the peritoneum is a mechanical process, but as to the exact mechanism he is still in doubt.

Influence of Streptococci on Virulence of Homologous Cocci.—Virulent hemolytic streptococci, isolated by Todd by blood culture from a case of puerperal septicemia, multiplied rapidly in normal human blood, but when a small quantity of the patient's serum was added to the normal blood multiplication was prevented, and the blood had a considerable bactericidal action on the cocci. Experiments are quoted to show that this phenomenon is not caused by (1) a direct bactericidal action of the serum on the cocci; (2) agglutination; (3) increased opsonization; (4) neutralization of filtrable toxin, or (5) action of the serum on normal leukocytes.

Treatment of Tetanus by Large Intrathecal Doses of Antitoxin.—Experiments made by Florey and Fildes did not show that the administration of large doses of antitoxin intrathecally, with considerable penetration of the nervous tissues, has, in rabbits, any greater value than the administration of the same quantity of antitoxin intravenously.

Value of Ramon Flocculation Test in Scarlet Fever.—Eagles concludes that the flocculation test is not a satisfactory means of measuring the toxin and antitoxin in scarlet fever.

British Medical Journal, London

2: 811-852 (Nov. 5) 1927

*Relation of Focal Sepsis to Mental Disease. W. Hunter.—p. 811.
Relation of Aberrant Mental States to Organic Disease. B. Moynihan.—p. 815.
Acute Intestinal Obstruction in Infancy and Childhood. A. MacLennan.—p. 818.
Deaf-Mutism Due to Bilateral Lesion of Auditory Sensory Areas. J. S. Fraser and S. H. Nelson.—p. 822.
Prevention of Ear Disease by Removal of Tonsils and Adenoids. A. J. Wright.—p. 823.
Radiography in Mastoid Disease. S. Young.—p. 824.
Pulmonary Embolism with Knot Formation in Clot. J. Gray.—p. 826.
Acute Barbital Poisoning with Lobar Pneumonia and Bedsores. S. M. Wells.—p. 826.
Treatment of Morphinism. G. L. Scott.—p. 827.
Foreign Body in Bladder. G. Chambers.—p. 827.
Use of Quinine Bihydrochloride in Obstetrics. O. Steel.—p. 827.

Relation of Focal Sepsis to Mental Disease.—Two hundred cases of mental disease are reported by Hunter in which the removal of a focal sepsis was followed by some worth-while results. The cases included manic-depressive insanity, dementia praecox, paranoid conditions, psychoneurosis and toxic psychosis. The sites of sepsis were mostly the teeth, tonsils, stomach, cervix, colon and seminal vesicles.

2: 853-906 (Nov. 12) 1927

History of British Midwifery (1650 to 1800). H. R. Spencer.—p. 853.
Chemical Changes Accompanying Muscular Activity. T. H. Milroy.—p. 856.
Optic Neuritis: I. Etiology, Diagnosis, Prognosis. J. V. Paterson.—p. 863.
Id.: II. Nomenclature of Condition. H. Rönne.—p. 866.
Id.: III. As Aid to Diagnosis. A. J. Ballantyne.—p. 869.
Vitamin Deficiency and Urolithiasis. E. C. van Leersum.—p. 873.
Effect of Early Industrialism on Health of Community. M. C. Buer.—p. 874.
*Pregnancy Uninterrupted by Severe Burns and Double Amputation. N. Asherson.—p. 875.
*Foreign Body Removed from Ear. E. Lowry.—p. 875.
Abnormal Development of Bladder in Newly Born Infant. R. H. Hunter.—p. 876.

Severe Burn of Pregnant Woman: Double Amputation.—Because of a third degree gasoline burn involving the whole surface area of both legs, from the level of the great trochanter down to the soles of the feet, the only parts escaping being a narrow band above each knee, where the garters protected the skin, and the soles of the feet, which were protected by the shoes, Asherson's patient, aged 21, was subjected to a double amputation, under intravenous ether anesthesia, at the level of the great trochanter. Under the anesthetic, she was found to be three months pregnant. She recovered from the operation with little or no shock, and apart from a local osteomyelitis in the amputation stumps and pyrexia for six weeks, her general condition improved. About four months later a secondary operation was performed on the stumps and the bare bone was covered. One month before labor she had typical facial erysipelas, but recovered. The pregnancy was unaffected by this sequence of events, and some six months after the accident she was delivered of a healthy child. At the time of the accident, the patient was expected to succumb from the effects of her burns, but neither this nor the shock of a double amputation had any effect on the course of the pregnancy.

Foreign Body in Ear Causes Deafness.—Lowry's patient, aged 40, had been deaf in one ear since childhood. Suddenly she complained of slight earache. Lowry removed a large plug of cotton-wool embedded in wax. The tympanum was perfectly normal, and at once the patient was able to hear a watch held about 30 inches away.

Edinburgh Medical Journal

34: 629-700 (Nov.) 1927

Abnormally Large Parietal Foramina. D. M. Greig.—p. 629.
*Aneurysm of Carotid in Cavernous Sinus. W. E. Foggie.—p. 649.
Comparative Anatomy and Development of Heart and of Alimentary Canal. D. Waterston.—p. 658.

Aneurysm of Carotid in Cavernous Sinus.—Foggie is convinced that there is need for the consideration of the possible diagnosis of an aneurysm whenever there is present a symptom-complex consisting of a paralysis or even a paresis of the third, fourth and sixth nerves in association with an involvement of the first and possibly the second division of the fifth nerve. This symptom-complex gives the definite localizing value, but the nature of the lesion must depend on the due evaluation of the other competing claims in a differential diagnosis.

Journal of Laryngology and Otology, Edinburgh

42: 721-792 (Nov.) 1927

Chronic Hyperplasia of Upper Jaw. F. B. Gilhespy.—p. 721.
Technic of Laryngofissure. W. Howarth.—p. 725.
Relation of Nasal Polypi to Inflammation of Accessory Sinuses of Nose. T. B. Layton.—p. 729.
*Occurrence of Brain Tissue Within Nose: So-Called Nasal Glioma. D. Guthrie and N. Dott.—p. 733.
Meningitis of Sphenoidal Sinus Origin. M. Vlasto.—p. 746.
Three Bronchoscopic Cases. W. S. Syme.—p. 751.
Case of Septicemia in Child Following Removal of Tonsils. J. G. French.—p. 754.

Brain Tissue Within Nose.—The occurrence of brain tissue in the nasal cavity as a development from an embryonic rest of the central nervous organ is said to be sufficiently common in young children to constitute a definite clinical entity. Apart from such cases of encephalocele, intranasal tumors containing glial tissue are extremely rare. Guthrie and Dott report two cases. One of these was probably a small encephalocele which in adult life became incorporated with a nasal polypus. The second case was one of nasal glioma. It illustrates the penetration of the nasal cavity by a cerebral frontal glioma of the spongioblastic type. The mode of penetration is explained on the basis of neoplastic invasion of a preexisting minute pressure hernia of the cortex. The occurrence of early pyogenic infection of this gliomatous protrusion has been demonstrated.

Medical Journal of Australia, Sydney

2: 565-596 (Oct. 22) 1927

Diathermy in General Practice. A. J. Reye.—p. 566.
Radiography of Nasal Accessory Sinuses. K. S. Cross.—p. 569.
Nonorganic Dyspepsias. F. L. Apperly.—p. 571.
Cure of Pruritus Ani by Operation. C. E. Corlette.—p. 580.
*Hemangiectatic Hypertrophy of Arm: Case of Genuine Phlebectasis. E. Susman and D. W. McCredie.—p. 581.
*Strangulated Inguinal Hernia in Aged. C. E. Corlette.—p. 582.
*Hepatic Hypertrophy in New-Born. R. F. Matters.—p. 583.

Case of Genuine Phlebectasis.—A gradual, painless, generalized swelling of the upper extremity in an otherwise healthy young adult is described by Susman and McCredie. The opinion is expressed that this case is an example of genuine phlebectasis—the rarest group of the hemangiectatic hypertrophies.

Strangulated Inguinal Hernia in Aged.—The case cited by Corlette was a hernia of the indirect type, with the inferior epigastric vessels medial to the opening. There was, however, no oblique canal, the superficial and deep openings being directly opposite one another and practically coalescent. The opening was quite small, and the constriction very tight. The upper mass of the hernia had occupied a large subcutaneous space superficial to the external oblique muscle. No sac membrane was distinguishable here, the bowel lying free in the subcutaneous tissue. The constriction which had divided the hernia like an hour-glass had been caused by a band in the subcutaneous tissue apparently corresponding to the neck of the scrotum. The patient was 91 years of age. He recovered.

Hypertrophy of Liver in New-Born.—About the fourth month of her pregnancy, Matters' patient developed enormous hemorrhoids which were resistant to treatment. The patient had hydramnios, and the fetal presentation was a breech. At the eighth month, Matters converted the breech into a vertex presentation. This, however, subsequently reverted to a breech. He repeated the version with a similar result. Finally, he repeated the version and put on a binder for three days, when the head had engaged at the brim. At about full term, the membranes ruptured before labor had begun. Thirty-six hours later, the patient developed genuine labor contractions and spontaneously delivered herself of a baby with a distended thorax and abdomen. The cord continued to pulsate for about twenty minutes and the infant endeavored to breathe. Meantime, artificial respiration was instituted and oxygen was used even to the extent of intratracheal insufflation. After about two hours the child died. A postmortem examination was made. The lower border of the liver extended down to the level of the iliac crests, while the upper surface reached the level of the manubrium sterni on the right side, absolutely restricting the diaphragm. The upper surface of the liver appeared to have so invaginated the diaphragm that the main respiratory muscle was almost folded around the liver.

2: 321-352 (Nov. 5) 1927. Supplement

*Hydatid Anaphylaxis. H. R. Dew.—p. 321.
Medical Aspect of Hydatid Disease. R. R. Stawell.—p. 323.
Roentgen-Ray Examination of Intrathoracic and Subdiaphragmatic Hydatid Disease. N. Guthrie.—p. 324.
Artificial Pneumothorax With and Without Lipiodol in Diagnosis and Treatment of Lung Conditions. J. F. Mackeddie.—p. 327.
Examination of Cerebrospinal Fluid. O. Latham.—p. 332.
*Surgery of Epithelial Bladder Tumors. G. Craig and R. K. L. Brown.—p. 337.
*Surgical Treatment of Raynaud's Disease and Similar Conditions. N. D. Royle.—p. 341.
Value of Comparative Pathology in Problems of Human Disease. L. B. Bull.—p. 343.
*Comparative Study of Kahn and Wassermann Tests in 6,000 Cases. E. F. D'Ath.—p. 346.
Tumors of Thyroid Gland. A. H. Tebbutt and V. R. Woodhill.—p. 349.

Hydatid Anaphylaxis.—Dew warns that exploratory puncture of even a simple cyst is dangerous and may even be fatal; in this eventuality, anaphylactic shock is often the main factor. The degree of sensitization of patients with hydatid disease varies. It is higher in patients who have undergone some complication such as rupture, operative intervention, puncture or recent suppuration. In these cases, any operative intervention after a period of fourteen to twenty-one days, or even earlier, may be followed by some anaphylactic symptoms. Operation under local anesthesia is not without risk of anaphylaxis, especially in complicated cases. General anesthesia greatly reduces anaphylactic sensitiveness, but owing to the spilling of fluid at operation delayed symptoms may occur after operation. For this reason careful technic is essential, especially in the manner of packing and in the removal of the fluid. The mode of reaction to the Casoni test may be a useful preoperative guide. If the second or erythematous stage of the reaction is present, especially if very evident, there is danger of anaphylactic symptoms following absorption of fluid. If only a wheal is produced or if the second stage is a mild reaction, the risk will be slight.

Diathermy in Bladder Tumors.—The results of diathermic treatment applied through the cystoscope to small papillomas of the first and second grade of malignancy, Craig and Brown find, are good. Diathermy in the two severer grades of bladder growths shows better results than even wide excision. The value of radium and roentgen rays in the treatment of bladder growths has yet to be determined. The better results of present-day treatment are due to the fact that the profession, and through them the public, are realizing that blood in the urine unaccompanied by pain is very often the first sign of cancer of the bladder.

Ramisection in Raynaud's Disease.—Eight cases are analyzed by Royle in which ramisection was done. Four of these were diagnosed as thrombo-angiitis obliterans; the other four were cases of typical Raynaud's disease. In thrombo-angiitis the result is at first satisfactory, but as the acute hyperemia wears off, there is often a return of pain, though the circulation of the limb is in a much more satisfactory condition than before operation. In Raynaud's disease the results are much more successful and permanent. In all cases, except one, the disease affected the lower limb and the operation led to a complete relief of symptoms. In the one case in which the upper limbs were subjected to operation, the result was not as complete, though in the lower limbs of the same patient the result was satisfactory.

The patient had had Raynaud's disease for about fourteen years, and it is probable that there were actual structural changes in the blood vessels to account for the less satisfactory result.

Comparison of Kahn and Wassermann Tests.—After an experience with 6,000 cases, D'Ath feels that the Kahn test constitutes a reliable control to the complement fixation test. Of the two tests that of complement fixation still remains the more valuable, but to obtain the best result both should be employed.

Paris Médical

63: 229-264 (Oct. 1) 1927

Neurology in 1927. A. Baudouin and H. Schaeffer.—p. 229.
Myopathy of Adult with Pseudohypertrophy of Small Muscles of Extremities. G. Guillain and N. Péron.—p. 239.
Writer's Cramp and Tests of Passivity: Hyperasthenia of Antagonists. André-Thomas and Salavert.—p. 243.
Glycorrhachia: Physiology of Lacunar Tissue. Riser and P. Mériel. —p. 250.
Cysticercosis of Fourth Ventricle. H. Schaeffer and Cuel.—p. 255.
*Polyuria in Intracranial Hypertension. A. Baudouin and P. Mornas. —p. 262.

Polyuria in Intracranial Hypertension.—The patient whose case is described by Baudouin and Mornas had hypertension which, taken with other symptoms, pointed to a diagnosis of cerebral tumor. The only symptom which might be attributed to a cerebellar lesion was an uncertain gait. There was a marked infundibular syndrome: diabetes insipidus, drowsiness, tachycardia and tendency to obesity. The disturbance of gait was attributed to hypertension and to quasi-blindness and a diagnosis of a tumor of the infundibular region was made. Roentgenograms did not confirm the diagnosis. At necropsy a cystic glioma was found in the cerebellum.

63: 265-280 (Oct. 8) 1927

Pointing Test and Cerebellar Localizations. J. A. Barré.—p. 265.
Clinical Development of Malignant Diphtheritic Angina. J. Chalier and A. Brochier.—p. 268.
Treatment of Metritis by Diathermo-Coagulation. H. Dausset, Chenilleau and Tedesco.—p. 273.
*Medical Drainage of Biliary Ducts Without Duodenal Tube. A. Bernard. —p. 276.

Medical Drainage of Biliary Ducts Without Duodenal Tube.—Bernard presents the cholagogue substances to his patient in the form of an effervescent mixture (several centigrams of sodium bicarbonate and tartaric acid), which bursts the enveloping capsule and is then dissolved in the gastric juice, and in an infusion ingested with the capsule. The warm cholagogues enter the duodenum in solution and provoke the duodeno-gallbladder reflex. The cholagogues should be administered between meals as follows: fasting and at 10 and 11 a. m. and 5 and 6 p. m. Eight cases illustrative of the efficacy of the treatment are reported.

Presse Médicale, Paris

35: 1161-1176 (Sept. 24) 1927

*Results in 6,000 Spinal Anesthesias. J. Ducuing.—p. 1162.
Pathogenesis of Edema of Bright's Disease. H. Chabanier, M. Lebert, C. Lobo-Onell and F. Lumière.—p. 1163.

Results in Six Thousand Spinal Anesthesias.—In 6,000 spinal anesthesias, Ducuing observed three deaths which could be charged to the anesthesia. One was in a man, aged 72 years, one in a man with peritonitis from appendicular perforation, and one in a woman exhausted from hemorrhage. Evidently, in all three cases the procedure was contraindicated. There was one meningeal reaction in a young man who had had encephalitis at the age of 6 years. In four cases there were contractures of the upper limbs which soon passed off. Urinary retention was more rare than after ether anesthesia. Within the proper limits, spinal anesthesia represents a perfect anesthesia, because it facilitates certain operations, simplifies the postoperative course and diminishes the total mortality.

35: 1185-1200 (Oct. 1) 1927

Carotinemia of Tuberculous: Its Relation to Cholesteremia. A. Pissavy and R. Monceaux.—p. 1185.
*Screw Technic in Fractures of Neck of Femur. R. Lascaux.—p. 1187.
Precipitation in Gonococcal Antiserums. Dombray and Morel.—p. 1190.
Symptomatology of Small Effusions of Fluid in Great Pleural Cavity. A. Ravina.—p. 1192.

Screw Technic in Fractures of Neck of Femur.—Lascaux uses a metallic screw from 6 to 7 mm. in diameter, such as is used in wood. He emphasizes the essential point in his method, namely: the body of the screw should be placed as near the lower wall of the neck as possible, near its posterior surface and not higher up, as is usually done. The opening should be made at a distance of about 2.5 to 3 cm. from the ridge of the trochanter, a little posterior to the median line. The length of screw to be used is determined from a roentgenogram of the unaffected hip. The operation is performed under constant roentgenographic control. The patient should be immobilized for three months. The results in ten cases were very encouraging.

35: 1201-1216 (Oct. 5) 1927

*Roentgen-Ray Treatment of Asthma and Spasmodic Coryza. Pasteur Vallery-Radot, P. Gibert, P. Blamoutier and F. Claude.—p. 1201.

Roentgen-Ray Treatment of Asthma and Spasmodic Coryza.—Pasteur Vallery-Radot et al. treated sixty-four patients, among whom thirty-one had asthma only, eight spasmodic coryza only, and twenty-five had both diseases. The patients were subjected to ten or twelve sittings, two a week, of about ten minutes each. Some treatments were directed toward the thorax, others toward the spleen. In nineteen patients, or 30 per cent, the attacks of asthma or coryza disappeared, in sixteen, or 25 per cent, there was improvement. There were twenty-nine failures, more or less complete. The effect of treatment seems to be attributable to a humoral action provoked by application of the rays.

Policlinico, Rome

34: 1423-1458 (Oct. 3) 1927. Practical Section

Histamine in Gastric Examination. V. Debenedetti.—p. 1423.
*Blood Groups in Disease. R. Lovaglio.—p. 1429.

Blood Groups in Syphilis, Tuberculosis and Malaria.—In some Italian provinces syphilis and in others malaria was more prevalent in blood group I. The distribution of tuberculosis among the different groups varied. The proportion of the four groups also varied in different provinces. In a province where groups I, III and IV, especially III and IV, predominated, these two groups prevailed in tuberculosis and group III in malaria. In another province where groups I, II and III preponderated, malaria and syphilis were found chiefly in group I and tuberculosis in groups II and III. In another province with ascendency of groups I, II and III, group I predominated only in malaria and group II only in tuberculosis.

34: 1459-1494 (Oct. 10) 1927. Practical Section

Subphrenic Pyopneumothorax. G. Tonello.—p. 1459.
Mediastinal Hernia in Pneumothorax. A. Gasparini.—p. 1461.
Pneumothorax in Lung Abscess. E. Battoni.—p. 1466.
Diagnosis of Spontaneous Pneumothorax. E. Garrone.—p. 1468.
*Pneumothorax and Pregnancy. E. Curti.—p. 1473.
*Bilateral Phrenic Section. E. Curti.—p. 1474.

Artificial Pneumothorax and Pregnancy.—Six pregnant women with tuberculosis were enabled by means of pneumothorax to reach full term. All the children are alive. Four patients are still in excellent condition.

Distant Results of Bilateral Phrenicotomy.—Bilateral phrenicotomy has a field of usefulness when pneumothorax cannot be used because of adhesions and thoracoplasty is inadvisable because of bilateral tuberculous involvement. In mild cases its cures may reach 80 to 90 per cent and in serious instances not more than 2 or 3 per cent. Out of six patients, one died within ten days from cardiac collapse, and another after three months from tuberculous enteritis. At the end of two years, two patients seem to be much better, one has improved generally but not as regards the lung, and the other case is recent.

34: 493-540 (Oct. 1) 1927. Medical Section

*Pellagra. P. Albertoni and P. Tullio.—p. 493.
*Blood Calcium. G. Melli.—p. 517.
Effects of Suprarenalectomy. F. Guccione.—p. 536. C'td.

Food and Pellagra.—Experiments made by Albertoni and Tullio show that with a corn diet a loss of body nitrogen occurs. With a meat diet, the reverse takes place as well as better utilization of protein in the intestine.

Micromethod for Determination of Blood Calcium.—With the method described by Melli, 0.4 cc. of blood may be used to determine the calcium content. Titration is performed with potassium iodide.

Riforma Medica, Naples

43: 937-960 (Oct. 3) 1927

Diabetes. G. Izar, L. Cannavò and G. Scuderi.—p. 941.
Case of Acromegaly. D. Liotta.—p. 942.
*Iodine in Thyroid. L. Castaldi.—p. 946.

Iodine in Human Thyroids.—In forty human thyroids coming from different places in four provinces the weight of the gland varied from 11.6 to 35.66 Gm.; and the amount of iodine per gram from 96 to 1,663 billionth parts. The proportion of iodine was lowest in goitrous regions. Even in the same province it varied according to the occurrence of the disease. In Florence, it was larger among farmers on the hills than in workers in town. All data seem to bear out the influence of environment, and, above all, of food.

Rivista di Clinica Medica, Florence

28: 463-502 (June 30) 1927

One Case of Embolic Aneurysm. F. Pescatori.—p. 463.
Insulin for Fattening Purposes. V. Scimone.—p. 476.
*Gastric Juice. G. Melli.—p. 486.

Unrepresentativeness of Gastric Juice Secured with the Tube.—While in appearance normal, gastric juice removed with the stomach tube may exhibit little peptic power or none. In other words, the stomach reacts to a factitious stimulus with a factitious secretion. In some cases, the juice became perfectly normal after a Leube's meal was given.

Brasil-Medico, Rio de Janeiro

41: 1035-1068 (Oct. 1) 1927

Ophthalmologic Curiosities. E. Campos.—p. 1035.
A Case of Pleurisy with Effusion. M. Da Rocha, Jr.—p. 1035.
Palpebral Myiasis. E. De Cerqueira Falcão.—p. 1038.
*Botelho Test in Cancer. A. L. Pimenta Bueno.—p. 1042.
Case of Facial Diplegia. J. Pacifico Pereira.—p. 1044.
Chemical Therapy of Pulmonary Tuberculosis. A. L. Stockler.—p. 1046. C'cn.

Botelho Test in Cancer.—The percentage of positive reactions with the Botelho test increases as the cancerous condition advances toward cachexia. It is also higher in visceral than in peripheral tumors. The positive results are not specific. In normal human blood the reaction always proved negative, but it became positive when the blood was hydrated. Avian blood, more watery than human blood, was usually positive.

Prensa Médica Argentina, Buenos Aires

14: 457-496 (Sept. 30) 1927

Late Traumatic Encephalitis. M. R. Castex, S. Balestra and A. F. Camauër.—p. 457.
*Primary Pulmonary Cancer. T. Castellano and J. Orgaz.—p. 469. C'cn.
Calcified Echinococcus Cyst. E. Lanari and A. Battro.—p. 481.

Primary Cancer of Lung.—These six necropsy records represent the cases of primary pulmonary cancer seen in the last eighteen months in a single hospital service. This is as many as were seen in the entire hospital during the five year period from 1914 to 1919 and half as many as in the five year period from 1920 to 1925. There were five other cases that could not be verified at autopsy. Ten patients were men, one was a woman. The maximum and minimum ages were 70 and 37 years, respectively.

Semana Médica, Buenos Aires

34: 865-940 (Oct. 6) 1927. Partial Index

Endorrhinoscopy Devices. L. Samengo.—p. 865.
Eustachian Tube and Middle Ear. P. L. Errecart.—p. 873.
False Cardiac Enlargement. T. Martini and C. A. Gourdy.—p. 876.
Gastric Ulcer with Polyadenoma and Accessory Pancreas. D. Del Valle and D. Brachetto-Brian.—p. 879.
A Case of Nägele's Pelvis. D. Iraeta and C. O. Medina.—p. 885.
*Erysipelas in Infants. E. Foster and F. Arancibia.—p. 890.
*Uterine Roentgenography. C. Heuser.—p. 905.
Acriflavine in Gonorrhea. F. E. Grimaldi and R. de Surra Canard.—p. 906

Treatment of Erysipelas in Infants.—Four infants with severe erysipelas recovered in from six to eleven days following local treatment with camphorated ether, use of an atoxic vaccine and ultraviolet ray applications.

Prevention of Reactions in Roentgen-Ray Examination of Uterus.—Iodized oil injected into the uterus and tubes for roentgen-ray examination causes pain and reactions only when it is overheated for liquefying purposes. Heuser has used it in hundreds of cases without any serious mishap.

Archiv für Kinderheilkunde, Stuttgart

82: 81-240 (Sept. 30) 1927

Appendix of Child in Roentgen-Ray Picture. J. Siegl.—p. 81.
*Effect of Rice Water on Gastric and Duodenal Secretion. Kufarew and Patuschinsky.—p. 87.
Acid-Base Equilibrium in Blood of Child; Special Reference to Full Bath: Titrable Blood Alkali. K. Hille.—p. 94.
Etiology of Madelung's Bone Disease in Hand. H. Tollas.—p. 112.
*Use of Acidified Milk as Permanent Diet. R. O. Lunz.—p. 145.
Nervous Symptoms Provoked by Intestinal Worms. A. Kollmann.—p. 150.
*Differential Diagnosis of Bone and Joint Tuberculosis in Childhood. S. Simon.—p. 157.
*Differential Diagnosis of Congenital Syphilis. E. Slawik.—p. 168.
Calcium and Phosphorus Contents of Blood Serum in Infants. O. Ulmer, E. Hillenberg and P. Schimmelpfeng.—p. 179.
Catalytic Action of Blood, Especially in Childhood. H. Bischoff.—p. 189.
Rumination in Infancy. G. Abraham.—p. 199.
Treatment of Tuberculous Skin Lesions in Children. P. Werth.—p. 212.
"Unobjectionable Milk for Children." A. Frank.—p. 215.
Reply. P. Reyher.—p. 217.

Effect of Bessau's 10 per Cent Concentrated Rice Water on Gastric and Duodenal Secretion.—Rice water (10 per cent) is only a weak stimulant of gastric gland function. It stimulates duodenal secretion and evokes an abundant secretion of a mixture of duodenal juices. The absence of the gallbladder reflex (minimum bile content) justifies the opinion that the secreted fluid is a mixture of pancreatic and intestinal juice. The reaction of the duodenal contents changes in the direction of increasing alkalinity; from p_H 6.5 to 7.2. The juice secreted after introduction of rice water possesses good digestive qualities as regards trypsin and especially diastase; the diastase content is considerably greater than that of natural juice of the period immediately preceding. The rice infusion evokes a considerable increase of secretion during the first succeeding work period, but in no way disturbs the further behavior of the gland as to its regular alternation of rest and function. The use of rice water is indicated in cases in which the stomach is in a resting condition and the burden of digestion is transferred to the duodenum, with the resulting need for its alkalinity to be raised. It is to be recommended for all children who have a tendency to fermentative processes.

Use of Acidified Milk as Permanent Diet.—Forty-five children, ranging from 2 weeks to 2 months in age at the beginning of the observation period, were fed with acidified milk mixtures for from four to five months. All the children received lactic acid milk, but twenty-one of them were given citric acid milk for from one and one half to two months. The majority of the children, even in the first months of life digested the acidified milk in suitable dilutions well and throve much better on it than on ordinary sweet milk mixtures. The citric acid milk was made by adding 4 Gm. of pure citric acid to 1 liter of milk. At the end of four weeks the infant was being fed exclusively on this mixture with a 5 per cent addition of sugar.

Differential Diagnosis of Bone and Joint Tuberculosis in Childhood.—There is a group of diseases marked by pain on walking and on active and passive movement of the ankle or knee joint, and also by some limitation of movement. At first these diseases, which have no definite name, are difficult to differentiate from tuberculosis, but after a time the symptoms disappear, and it is seen that they were not due to tuberculosis. In the infant with generalized syphilis there are usually manifestations in the skin or special organs, and the typical syphilitic osteochondritis of the infant is quite characteristic. With increasing age and as one approaches late syphilis, the diagnosis becomes more difficult. The Wassermann reaction did not serve Simon in many instances. Often tuberculosis and syphilis are both present in the bones. Syphilis has a predilection for the diaphyses, tuberculosis for

the epiphyses. There is, however, a rare tuberculosis of the diaphysis, the so-called osteomyelitis tuberculosa. In tuberculosis there is much swelling of the diaphysis, atrophy of the bone and absence of periostitis. These distinguish it from syphilis and also from osteomyelitis provoked by the usual pyogenic agents. Syphilis attacks by preference the vault of the cranium and the framework of the nose, while tuberculosis most frequently attacks the bony border of the orbit or the lower jaw. In other parts of the body both diseases are likely to attack the same sites. The roentgenogram of osteomyelitis with the massive new bone formations in irregular shapes and the lack of bone atrophy is characteristic. In chronic polyarthritis, the deformities, mostly in the joints, are especially typical in the fingers and toes. The great number of joints involved is characteristic. In chronic arthritis deformans the roentgenogram shows markedly changed epiphyses and moderate atrophy of disuse, which, however, is never so severe as in tuberculosis with skeletal changes of the same degree. Tuberculous foci in the femur or acetabulum which have not yet broken through to the joint cause very slight symptoms of disease, and hence, may keep one from thinking of tuberculosis. In adolescent coxa vara also the seat of the disease is in the epiphysis of the head of the femur. Several other and rarer diseases are mentioned and differentiated from tuberculosis.

Differential Diagnosis of Congenital Syphilis.—The blood Wassermann reaction of the parents of an evidently syphilitic child may be negative. The negative Wassermann reaction in the young infant is not of much value. Fetal death before term suggests syphilis. Skin symptoms are the most striking and the most frequent manifestation of the syphilitic infection; lesions on the palm of the hand and the sole of the foot are characteristic of syphilis. Every protracted umbilical bleeding and melena should make one suspect syphilis. Typical syphilitic papules are usually located on the forehead and near the edge of the hair. This manifestation is especially characteristic if it spreads to the labial mucosa. In every protracted icterus neonatorum a syphilitic etiology should be thought of. In every staphylomycosis of long duration and in every bone tuberculosis, especially in earliest infancy, and with multiple localizations, a combination with syphilis must be considered, and if other causes can be eliminated, then antisyphilitic therapy should be tried.

Archiv für klinische Chirurgie, Berlin

147: 405-636 (Oct. 15) 1927

*Fate of Hemorrhagic Effusions. P. Seeliger.—p. 405.
Hemorrhage from Middle Meningeal Artery in Temporal Trephining. M. Saito.—p. 451.
Atresia of Ileum Cured by Ileocecal Resection. F. Demmer.—p. 471.
Use of Animal Fascia Sutures. G. Wolfsohn.—p. 479.
*Physiologic Anatomy of Gallbladder. W. Pfuhl.—p. 490.
Experimental Thrombus Formation. F. Emmerich.—p. 499.
Experimental Studies in Anesthesia. H. Killian.—p. 503.
Bleeding After Gastro-Enterostomy. G. M. Gurewitsch.—p. 518.
*Treatment of Tetany and Spasmophilia in Adults by Bone Transplantation. J. M. Krinizki.—p. 530.
Local or General Anesthesia in Operation on Goiter. A. Lundgren.—p. 542.
Heterotopic Endometrioid Proliferation. H. Baltzer.—p. 555.
Alcohol Injection of Vegetative Nerve Plexuses and Alcohol Moistening of Gastric Arteries for Castralgia and Gastric Ulcer. N. N. Nasaroff.—p. 576.
Intravenous Injection of Pilocarpine for Postoperative Urinary Retention. D. G. Goldmann.—p. 582.
Roentgen-Ray Diagnosis of Intra-Abdominal Abscesses. H. Laurell and A. Westerborn.—p. 593.
Compression of Carotid in Skull Cavernoma. F. Demmer.—p. 615.
Effect of Splenectomy on Healing of Fractures. B. Zypkin and A. Mannheim.—p. 623.
Repair of Large Defects of Cheek. H. Ehrenfeld.—p. 633.

Fate of Hemorrhagic Effusions in Various Tissues; Calcification and Ossification.—The author made a histologic and histochemical study of the fate of hemorrhagic effusions in man and in experimental animals. When an effusion in soft tissues was not completely absorbed, it became organized into connective tissue. In the presence of bone, ossification took place. Histologic studies failed to establish whether ossification had its origin in the proliferation of osteoblasts or in the growth of embryonal mesenchymal cells and their ultimate transformation into bone forming tissue. Since the study of fractures shed no light on the process, it seemed advisable to produce bone growth experimentally in soft tissue. Calcification undoubtedly plays an important rôle in ossification. The first step, therefore, is the increase of the calcium content in a given area. Since split albumins have the property of attaching to themselves calcium ions, the muscle was traumatized. This measure alone was found to be capable of raising the calcium content threefold. Addition of fatty acids, such as cholesterol and lecithin, and of calcium phosphate enabled him to produce calcification in a muscle. He obtained the same result by artificially lowering the hydrogen ion concentration of tissues.

Physiologic Anatomy of the Gallbladder.—Pfuhl believes that the gallbladder empties through the contraction of its own musculature and not because of changes in the intra-abdominal pressure. Haberland and other adherents of the theory that the gallbladder plays a passive rôle in emptying, point to the fact that the gallbladder does not respond to application of an electric current. They also call attention to the fact that injection of solution of pituitary produces powerful peristaltic waves in the bowel, but not in the gallbladder. Pfuhl, however, points out that intestinal musculature and gallbladder musculature are not homologous. Whereas the bowel possesses a muscular coat which is independent of the mucosa, in the gallbladder and in the bile ducts the muscle layer is most intimately connected with the mucosa. The musculature of the gallbladder is in the strictest sense a muscularis mucosae. Since the two are not homologous, they need not behave in the same manner. Variations in the intra-abdominal pressure are too insignificant to account for the emptying. Boyden's histologic studies of distended and contracted gallbladders in cats have demonstrated the marked difference in the thickness of the musculature in the two states.

Treatment of Tetany and Spasmophilia in Adults by Bone Transplantation.—In a previous communication the author showed that a state of hypercalcemia can be produced in a guinea-pig by means of bone transplantation. The experiment was later applied to human beings afflicted with surgical conditions associated with spasmophilia or tetany. This resulted in a rapid disappearance of spasmophilic symptoms and an associated rise in the blood calcium level. Heterogenous transplants proved to be just as efficient as homogenous. Ordinary soup bone may be used. He transplanted a piece of bone measuring about 5 cm. by 3.4 cm. by 0.5 cm. into the subcutaneous tissues. In his opinion, the result obtained cannot be explained on the basis of the transplant acting as a depot of calcium. One is lead to believe that some hitherto unexplained reciprocal action between the transplant, the parathyroid hormone, the blood and the tissues takes place.

Deutsche medizinische Wochenschrift, Berlin

53: 1715-1756 (Oct. 7) 1927

Protein Therapy: Experimental and Biologic Bases. Matthes.—p. 1715.
Nonspecific Therapy. F. Haffner.—p. 1718.
*Protein Therapy in Practice. F. Klewitz.—p. 1719.
Id.: In Gynecology and Obstetrics. G. Schwarz.—p. 1721.
Id.: In Ophthalmology. Birch-Hirschfeld.—p. 1724.
Id.: In Diseases of Skin and of Genital Organs. W. Scholtz.—p. 1725.
*Id.: In Pediatrics. W. Stoeltzner.—p. 1726.
Error of Diagnosis with Interfereometer. E. Kaufmann.—p. 1731.
Disoxidative Carbonuria in Cancer. N. Medwedeva.—p. 1732.
Why Is Use of Large Fish of Prey in Bothriocephalus Latus Regions More Dangerous to Man Than That of Small Fish? M. Hobmaier.—p. 1733.
Does Leukocyte Estimation on Blood Streak and Thick Drop Give Practical Data for Clinical Use? W. W. Haagen.—p. 1736.
Use of Ironing Machines for Disinfection. M. Hahn and W. Strauss.—p. 1738.

Protein Therapy in Arthritis and Asthma.—In nearly all the cases of arthritis treated by Klewitz with proteins, physical procedures and drugs were also used. Protein treatment in chronic arthritis checked the progress of the disease only in exceptional cases; usually in the course of a year further treatments had to be undertaken. After disappearance of the severe reaction following some injections, there frequently sets in a subjective condition of well-being which is, however, fleeting. Klewitz treated 130 patients with bronchial asthma by means of old tuberculin and peptone. The latter has an

advantage in ambulant cases, because severe reactions are rare. Tuberculin may be more effective, but the dosage is more difficult.

Protein Therapy in Pediatrics.—Doses of serum or milk to be injected in children should range between 0.1 and 10.0 cc. Daily injections are given on five successive days. There is danger of anaphylaxis, except in very young infants. Stoeltzner has used horse serum, cow's milk, and certain protein preparations. He is not satisfied with any of them. In his 189 cases, the children ranged from 8 days to 12 years in age, the intravenous dose from 0.05 to 0.8 cc., and the subcutaneous dose from 0.05 to 2.00 cc. In the great majority of the cases, no curative effect was apparent. Most of the local reactions were severe and slow to disappear. After intracutaneous injection of 0.1 cc. of boiled bouillon cultures of *Bacillus coli* there were slight rises of temperature. Subcutaneous injection of sufficient doses of this preparation caused typical general reactions. Old cultures of *B. coli* boiled in water contain extractable, filtrable pyrogenic substances, which, injected subcutaneously in sufficient doses, provoke a typical general reaction, which is capable of producing a nonspecific cure in infectious diseases.

Klinische Wochenschrift, Berlin

6: 1881-1928 (Oct. 1) 1927

Constitutional Serology and Blood Group Research. L. Hirszfeld.—p. 1881. C'td.
Physiology and Pathology of Pituitary. F. Poos.—p. 1884.
Insulin Superalimentation and Habituation. Schellong and Hufschmid.—p. 1888.
Growth and Development of Diabetic Children. R. Priesel and R. Wagner.—p. 1892.
Animal Experiments with Synthalin. P. E. Simola.—p. 1895.
Researches on Cerebrospinal Fluid. E. Jacobsthal and M. Joel.—p. 1896.
Herpes. W. Loewenthal.—p. 1899.
International Regulation of Blood Tests for Blood Group. R. Kraus.—p. 1901.
*Question of Individuality of Scarlet Fever Streptococci. F. Szirmai.—p. 1902.
Metastasizing Parenchymatous Struma Nodosa and Trauma. E. Brinkmann.—p. 1903.
Treatment of Congenital Syphilis. A. Buschke and M. Gumpert.—p. 1904.
Phosphate Determination in Small Drops of Serum. T. Brehme and E. M. Lepski.—p. 1905.
Fatal Anemia in Trichocephalosis. P. Bonem.—p. 1906.
Postural Defects and Scoliosis. F. Schede.—p. 1908. C'cn.
International Goiter Conference in Bern. W. His.—p. 1913.

Do Scarlet Fever Streptococci Possess a Biologic Individuality?—Szirmai's investigations lead him to the belief that the hemolytic streptococci pathogenic to man represent a single variety of bacterium, which, however possesses various pathogenic capabilities. In individual streptococci these various capacities are developed in different degrees. There are simple strains which produce only suppuration, pharyngitis, etc., and strains of complex character, which, in addition to the capacities common to all, possess one or more of the particular capacities necessary for the production of sepsis, erysipelas, scarlet fever, etc. In the pathogenesis of the last named diseases only those strains are active that possess, permanently or temporarily, the special capacity. In order that the disease in question should actually be developed, a number of other factors must, however, be present. This explains the presence in other diseases of streptococci capable of forming scarlet fever toxin. One may assume that the same strain, provided its character was sufficiently complex, might produce scarlet fever on one occasion, erysipelas on another. In all probability the majority of nonscarlatinal strains do not possess the capacity for forming scarlet fever toxin, so that it may be assumed that, although in many cases certain ordinary streptococcus infections play a rôle in immunization and in the spread of scarlet fever, this is not the case with the majority of such streptococcus contacts.

6: 1929-1976 (Oct. 8) 1927

Constitutional Serology and Blood Group Research. L. Hirszfeld.—p. 1929. C'cn.
Pharmacologic Examinations with Thyroxin. F. Haftner.—p. 1932.
Activity of Thyroxin in Endocrine Disturbances. A. Schittenhelm and B. Eisler.—p. 1935.
Effect of Thyroxin. W. Schoeller and M. Gehrke.—p. 1938.
Examination for Bile Acids in Serum of Patients with Hepatic Disease. K. Schalscha and K. Landé.—p. 1939.
Mechanism of Alimentary Hyperglycemia. L. Pollak.—p. 1942.
*Blood Groups and Malaria Inoculation. R. Wethmar.—p. 1947.
Serotherapy in Bites of European Vipers. R. Otto.—p. 1948.
Tonus Bandage in Tabes Dorsalis. E. Brinkmann.—p. 1950.
Potassium and the Parasympathetic. S. G. Zondek.—p. 1951.
Hydrocyanic Acid Fastness of d'Herelle's Bacteriophage. W. Borchardt.—p. 1952.
Development of Measles Virus. G. Petényi.—p. 1953.
Enlarged Hearts in Childhood. R. Sperling.—p. 1953. C'td.
American Impressions. O. Gans.—p. 1957. C'tn.
Treatment of Coryza with Diathermy. Hamm.—p. 1975.

Blood Groups and Malaria Inoculation.—The blood group was determined in sixty-five subjects inoculated for the first time with malaria. There is a connection between the relation of the blood group of the donor to that of the recipient, on the one hand, and the length of incubation time, the course of incubation and the type of fever, on the other hand. With unfavorable blood group relations between donor and recipient, the incubation time with intravenous injection is prolonged to almost double the number of days. With intracutaneous inoculation with unfavorable relations there is a considerable lengthening of the incubation period. The duplex (or bifurcate) form of inoculation malaria with daily attacks is most frequently found after intravenous injections with favorable group conditions. The same is true for the tertian form with mixed fever type. The pure simplex forms are found most frequently in intracutaneous injections with unfavorable group relations and next in intravenous injections with unfavorable group relations. Unsuccessful inoculations were not observed in any case of unfavorable blood group relations. Transfusion injuries in the form of temperature elevations above 38 C. and chills on the first or second day after the inoculation were only observed in inoculations with unfavorable blood groups and were more frequent in intravenous than in intracutaneous inoculations.

Medizinische Klinik, Berlin

23: 1601-1636 (Oct. 21) 1927

Amenorrhea. F. Heimann.—p. 1601.
*Ambulant Treatment of Dyspeptic Infants with Simple Remedies. F. Kruse.—p. 1606.

Ambulant Treatment of Dyspeptic Infants with Simple Remedies.—Kruse reports good results from the treatment of seventy-four nurslings, who suffered from diarrhea of various degrees of severity, with rice porridge and milk. First, these infants were given only the porridge; gradually milk was added to it, and finally, by the twelfth day, a mixture of one-half milk and one-half porridge was given. Calcium carbonate, a pinch, was added to the food from the second day on, the first day being a fast day, except for fennel tea.

Münchener medizinische Wochenschrift, Munich

74: 1697-1738 (Oct. 7) 1927

Operative Treatment of Hypertrophic Pyloric Stenosis of Infants. B. Hundsdörfer.—p. 1697.
*Etiology and Serotherapy of Fulminating Appendicitis. Hilgermann and Pohl.—p. 1700.
Combating Ulcus Serpens. K. Heesch.—p. 1701.
Wassermann Reaction with Increased Amounts of Serum. H. Felke.—p. 1702.
Infections with Bacillus Abortus of Bang in Man. F. Dietel.—p. 1704.
Id. Veilchenblau.—p. 1705.
Nicotine and Blood Pressure. G. Kühn.—p. 1707.
Epilepsy from Acquired Internal Hydrocephalus After Skull Trauma. Gierlich and Heile.—p. 1707.
Simplification of Intravenous Injections. J. Katzenstein.—p. 1713.
Practical Respiration Apparatus for Clinic. G. Lehmann and E. A. Müller.—p. 1714.
Granulocytes. W. von Möllendorff.—p. 1715.
Bacteriology of Pemphigus. C. M. Hasselmann.—p. 1716.
Abortion in Russia and in Germany. H. Sellheim.—p. 1717.

Etiology and Serotherapy of Fulminating Appendicitis.—Hilgermann and Pohl found that the clinically difficult cases of appendicitis are generally caused by pneumococci, streptococci or diphtheria bacilli. On account of the diversity of strains of pneumococci and streptococci, great care should be taken that every district is supplied with its specific serum since it alone acts favorably. Infection of the appendix seems to come from the blood stream. Diseased tonsils are incriminated as the primary foci of infection.

Virchows Archiv für path. Anat. und Physiol., Berlin

266: 1-320 (Nov. 3) 1927

*Inflammation of Thoracic Duct with Suppuration. E. Kryloff.—p. 1.
Effect of Stretching on Striated Muscle, as in Abdominal Muscles During Pregnancy. A. Strauss.—p. 4.
Heart: Suction (Vacuum) and Pressure Pump: Aids to Circulation. G. Hauffe.—p. 18.
Bone Formation in Myocardium. H. Edelmann.—p. 51.
Pathogenesis of Hepatic Necrosis and Connective Tissue Hyperplasia: Results of Ligation of Hepatic Artery. L. Loeffler.—p. 55.
*Effect of Light on Experimental Tuberculosis in Guinea-Pigs. H. Löwenstädt.—p. 99.
Effect of Acid and Alkaline Foods on Mouse, Especially with Reference to Development of Hyaline, (Amyloid?) and Waxy Degeneration. R. Rabl.—p. 133.
Influence of Foods on Cell Reaction in Infections of White Mouse. L. Schwarz.—p. 151.
*Changes in Skeletal Muscle in Trichinosis. H. Nevinny.—p. 185.
*Prognostic Value of Indican in Blood in Kidney Inflammations. A. Krokiewicz.—p. 239.
Rare Malformation of Tricuspid Valve (Ebstein's Disease). A. Arnstein—p. 247.
Histologic Changes in Reticulo-Endothelial System in Various Forms of Puerperal Fever. H. E. Scheyer.—p. 255.
*Lymph Stasis. W. Talalajeff.—p. 268.
Primary Tuberculous Otitis Media in Infant. M. Zarfl.—p. 274.
Metaplasia of Epithelium of Lung Alveoli, the Result of Chronic Inflammation. P. Gunkel.—p. 310.
Heredity in Uniovular Twins: Etiology of Birth Marks. E. Meirowsky.—p. 313.
Reply. H. W. Siemens.—p. 317.

Inflammation of Thoracic Duct with Suppuration.—Kryloff reports one case; thirteen are now on record. In none of these, did the thoracic duct inflammation cause death; in most of them peritonitis with septicemia was responsible. The symptoms in this case were: sudden onset with headache, cough, coryza, backache, weakness, dry, coated tongue, sensitiveness on pressure in the ileocecal region, enlarged spleen. On the fourth day, the patient complained of severe pains in the right side and dyspnea. He died on the fifth day. The diagnosis was typhoid state, pleuropneumonia and influenza. At the postmortem examination, the thoracic duct was found almost filled with a septic plug.

Effect of Light on Experimental Tuberculosis in Guinea-Pigs.—Guinea-pigs, inoculated subcutaneously with tubercle bacilli, were exposed to sunlight, light from a quartz mercury vapor arc and from a carbon filament lamp, but no effect on the disease was noted. When small doses of a 1 per cent aqueous solution of eosin were injected, all the tubercles became encapsulated after exposure of the animal to light.

Changes in Skeletal Muscle in Trichinosis.—Five clinical and eighteen experimental cases of trichinosis were studied by Nevinny. In none of the human cases and in only two of the animal cases did easily recognizable changes in the muscle occur. The microscopic changes are described. The muscle pains are accounted for by the exudate and cell infiltration. This reaction is more severe in the human being than in the animal.

Prognostic Value of Indican in the Blood in Kidney Inflammations.—Krokiewicz asserts that hyperindicanemia in cases of nephritis has prognostic value inasmuch as uremia rarely, if ever, occurs when hyperindicanemia is not present. Increase in residual nitrogen is usually also present in these cases, but unless hyperindicanemia exists, it is not of prognostic value so far as the development of uremia is concerned.

Lymph Stasis.—Talalajeff relates the case of a man whose symptoms led to a diagnosis of cancer of the liver, with anasarca, ascites and hydrothorax. At necropsy, the thoracic duct in the abdominal zone was found to be completely obliterated. The cisterna chyli was cicatrized and the lymphatic system of the mesentery was dilated.

Wiener klinische Wochenschrift, Vienna

40: 1245-1276 (Oct. 6) 1927

*Duodenal Secretion After Resection of Stomach. K. Glaessner.—p. 1245.
*Relations of Gastric Process to Reaction of Blood. G. Holler and J. Blöch.—p. 1247.
Chlorine Excretion After Administration of Chlorides in Hepatic Disease. B. Kriss and L. Pollak.—p. 1251.
Oscillospira Guillermondi. A. Luger and A. Kautzky.—p. 1254.
Physiology and Pathology of Fat Secretion. H. Schur and L. Goldfarb.—p. 1255.
Rectal Palpation. E. Schütz.—p. 1259.
*Intestinal Action of Quinine. G. Singer.—p. 1261.
Blood Sugar Examinations After Administration of Glucose. A. von Torday.—p. 1263.
Relation of Gastric Disturbances to Pulmonary Tuberculosis. W. Neumann.—p. 1265.
Meteorism and Its Treatment. K. Glaessner.—p. 1268.
Rheumatism and Gout. E. Maliwa.—p. 1269.

Duodenal Secretion After Resection of Stomach.—Glaessner reports ten cases in which he obtained the duodenal secretion. In eight of these, the stomach had been resected on account of duodenal ulcer, in one on account of injury of the stomach, and in one for neoplasm of the stomach. The amount of lipase was very small in two cases, medium in five, increased in three. Diastase was entirely absent in two cases, medium in six and normal in two. Trypsin was reduced in all cases except two. Pepsin was, of course, absent in all the cases. In most cases, the ferment secretion of the pancreatic juice had undergone injury, since in only 30 per cent were there normal lipase values. Diastase and trypsin were normal in 20 per cent. Hence, it is evident that the pancreatic function is injured.

Reciprocal Relations of Gastric Process to Reaction of Blood.—The carbonic acid tension in venous blood did not change in the course of digestion experiments. The values were, except in cases of abnormal bladders, quite constant. Changes in the blood carbonic acid tension cannot be demonstrated, at least with the Hollo-Weiss method. Supposing the method to be trustworthy, it must be concluded that such slight reaction changes as those taking place in the blood of the stomach during a coffee test breakfast do not require regulation through the lung respiratory center system, but that they can be compensated through the other reaction regulating mechanisms of the body, especially through the excretory activity of the kidneys. Holler and Blöch were able to conclude from their work with patients with gastric ulcer that neither hyperacidity of the gastric secretion nor increased hydrogen concentration of the blood is of any etiologic importance in ulcer. Both are secondary symptoms of a permanent basic disease and in the last analysis, therefore, dependent on the condition of the gastric glands.

Intestinal Action of Quinine.—Singer reports the action of quinine in seventy-two cases of severe and intractable constipation and illustrates the action by roentgenograms taken before and after administration. The preparations used were quinine dihydrochloride, quinine dihydrochloride-carbonate and quinine dihydrobromide. They were given intravenously, subcutaneously and rectally in the form of suppositories or small enemas. Rectal administration gave by far the best and most prompt results. Of a group of thirty patients treated with quinine dihydrochloride suppositories, twenty-eight reacted, two did not. The dose was 0.25 Gm. per suppository. Action was obtained usually within a few minutes; at the longest within two hours. The small enemas consisted of 25 cc. of a 2 per cent solution. In some cases, the dose was increased to 1 Gm. without any untoward results. The other preparations were used rectally, intravenously, subcutaneously or intramuscularly. Ten cubic centimeters of a 5 per cent solution were injected. In fifty-four out of the entire seventy-two cases there were positive results. These investigations suggest that quinine, especially its soluble double salts, exercises an immediate exciting action on the smooth musculature of the intestine which seems to be analogous to its action on the bladder and on the uterus. Quinine treatment, after verification of these data, may prove of value in postoperative paralysis of the intestines.

Zeitschrift f. d. ges. Neurol. u. Psychiat., Berlin

110: 1-162 (Aug. 10) 1927

Plan of Auditory System. S. Poljak.—p. 1.
Psychotherapy in Psychoses,—with Special Reference to Occupational Therapy. O. Löwenstein.—p. 50.
Sibling Psychoses. H. Wildermuth.—p. 60.
Relation of "Episodic Twilight States" to Manic-Depressive States and Epilepsy. W. Kaldewey.—p. 113.
Gliosis Spinalis. G. W. Perwuschin.—p. 148.
*Spinal Fluid in Hydrophobia. H. Weber.—p. 158.

Cerebrospinal Fluid in Hydrophobia.—The cerebrospinal fluid of patients with hydrophobia shows increase in number of cells and increased globulin content (no specific elements). The variations from normal are the same as those in some other diseases of the central nervous system. Differential diagnosis must be made from poliomyelitis and tetanus.

110: 163-336 (Sept. 1) 1927

Tumors of Auditory Nerve. G. Mingazzini.—p. 163.
Psychotherapy on Behavioristic Basis. S. Fleischmann.—p. 176.
Aphasia Foci. N. von Mayendorf.—p. 189.
*"Essential" or Hereditary Tremor. L. Minor.—p. 204.
Hereditary Tremor. Schenderoff.—p. 210.
Chromoneuroscopic S-Fuchsin Test in Differential Diagnosis of Nervous Diseases. E. Flatau.—p. 215.
*Psychology of Medical Testimony. F. Fränkel.—p. 223.
Nosology of Epileptic Attacks. E. Lewy.—p. 235.
Sensory Paralyses of Trigeminal Nerve in Industry. L. Kalinowsky.—p. 245.
Behavior of Vestibular Nystagmus in Paralyses of Muscles of Eye. S. Weisz.—p. 257.
Psychomotor Disturbances, Especially Pseudospontaneous Movements in Tabes Dorsalis. H. Taterka.—p. 265.
Hemangioma Cavernosum Cerebri of Unusual Location and Size. H. Pinéas.—p. 281.
Anatomic Findings in Pinéas' Case of "Peculiar Forced Posture After Hemiplegia." J. Casper and H. Pinéas.—p. 291.
Laughter as First Symptom of Apoplectic Attack. B. Badt.—p. 297.
Paralysis Agitans After Epidemic Encephalitis in Rorschach's Form-Interpretation Test. H. Veit.—p. 301.

"Essential" or Hereditary Tremor.—Minor presents three cases of tremor in which several members of the patient's family were affected and eight cases which were solitary. Longevity and large numbers of children were characteristics of the families.

Psychology of Medical Testimony.—Fränkel points out some of the ways in which expert medical opinion may be unjust to the patient. In reckoning percentages of disability, the influence of the partial defect on other parts of the organism or on the organism as a whole is excluded as irrelevant. It is wrong to use against the interests of the patient unproved fruits of medical research, some of which are as yet only working hypotheses. Psychopathic taint has become a formula, an assertion *a priori*. How can science prove that only the abnormal are unable to overcome terror, violence and disease? He denies that withdrawal of the pension has resulted in curing the patients in anything like the numbers stated. Neither is the situation of the pensioned so advantageous as compared with that of the wage earner. Though some of these patients have in fact become wage earners after the stopping of their pensions, the ability to work is not synonymous with cure. If medical science is far enough advanced to diagnose a predisposition to sustain incurable injury from causes that would not so affect the normal man, the diagnosis should be made at a time when it could afford the endangered person protection. If it is not so far perfected, it is too undeveloped to be applied later, to his economic detriment.

Zeitschrift für klinische Medizin, Berlin

106: 215-528 (Oct. 14) 1927

Influencing Ventilation Conditions of Dyspneic Patients by Medicines. E. Wittkower and H. Petow.—p. 215.
Donders' Pressure. E. Rehfisch.—p. 229.
Influence of Training for Rowing on Pulmonary Ventilation, Heart and Blood Picture. R. Ackermann.—p. 244.
Action of Intravenous Injection of Minute Quantities of Water. E. Wollheim and F. Brandt.—pp. 257 and 274.
Blood Sugar Threshold in Hypertonia. F. Peiser.—p. 290.
Studies in Hypertension. J. Gelman.—pp. 310 and 320.
Dysfunction of Intestinal Tract and Pernicious Anemia. W. Schmidt.—p. 337.
"Free" Sugar in Serum. L. F. Loeb and D. Krüger.—p. 354.
Hypoglycemia, Shock and Leukocytosis from Insulin in Man. O. Klein and H. Holzer.—p. 360.
Pain as Guiding Symptom. G. Szemző.—p. 386.
*Unusual Symptoms of Scleroderma. K. von Arady.—p. 406.
*Improved Method for Differential Leukocyte Count. J. Goldmann.—p. 420.
Disturbances in Formation and Conduction of Stimulus in Heart. M. Staemmler and W. Wohlenberg.—p. 425.
Periarteritis Nodosa. H. W. Bansi.—p. 439.
*Etiology and Healing of Nephritic Retinitis. V. Kollert.—p. 449.
Apoplectiform, Nonembolic, Nonhemorrhagic Brain Softening and "Arterio-Capillary Fibrosis." Rosenblath.—p. 482.

Extradermal Localizations of Scleroderma.—Sclerodermal cataract may precede the skin changes and be the first evidence of the disease. It is found chiefly with symmetrical, diffuse scleroderma. It is always bilateral, but does not present a uniform clinical picture. In Arady's case, in a man, aged 41, it resembled senile cataract. The larynx and pharynx are somewhat more frequent localizations for scleroderma than is the eye. The early symptoms are seldom brought to the physician's attention—slight hoarseness, the voice becomes less loud. The laryngeal changes characteristic for scleroderma are shown in insufficient approximation of the vocal cords, caused by shrinking of the adductor muscles. The process is symmetrical, and the clinical picture varies with the muscles involved—the thyro-arytenoidei, crico-arytenoidei, arytenoidei transversi, or a combination of two or all. In Arady's case there was a pathologic chink in the region of the pars interligamentosa. In advanced atrophy the patient speaks in falsetto, and with great expenditure of breath. The changes in the larynx occur chiefly in diffuse scleroderma. They are an early symptom. Pharyngeal lesions appear late. They are similar to these of the larynx. Deglutition is difficult. Bulbar symptoms often predominate. In a further case described by the author, scleroderma was associated with a considerable increase in basal metabolism. This was, however, the only one of nine cases examined in which the basal metabolism was abnormal. The dynamic action of food was found decreased in a number of patients with scleroderma.

Improved Method for Differential Leukocyte Count.—Goldmann recommends a small drop and a narrow streak (3 mm.). One hundred or 200 cells are counted in the usual manner. Then the entire specimen is scrutinized to detect and correct errors in the differential count. With the narrow streak the number of turns of the screw needed in the examination is reduced by three quarters. He believes that the various cells are more accurately represented in the small drop than in the different segments of a preparation.

Etiology and Healing of Nephritic Retinitis.—Hypertension and narrowing of the vessels appear to be the essential factors in the origin of nephritic retinitis. A fall in blood pressure in the course of the disease is a favorable prognostic sign as to life; healing, even, may occur. Similarly, the retinal arteries, narrowed in progressive retinitis, incline to become normal in healing stages. In glomerulonephritis, with or without retinitis, the sedimentation speed of erythrocytes is almost constantly increased. Decrease of the speed is a favorable prognostic sign, even with continued hypertension. Deposits of cholesterol esters in the eye frequently occur with hypercholesteremia, but only when retinal disease is already present.

Zentralbl. f. Chirurgie, Leipzig

54: 2817-2880 (Nov. 5) 1927

*Läwe's Method of Treatment of Abscesses by Means of Blood Injections. O. Wiedhopf.—p. 2818.
*Operative Treatment of Pruritus. J. Vorschütz.—p. 2821.
Effusion of Bile Into Peritoneal Cavity. S. Keszly.—p. 2826.
Effect of High Ligation of Blood Vessels on Extremities. H. Hartleib.—p. 2829.
Emphysema of Skin and General Emphysema in Gastroduodenal Perforations. S. Korach.—p. 2832.

Läwe's Method of Treatment of Abscesses by Means of Blood Injections.—The treatment consists of injecting the patient's venous blood around the inflammatory focus. The walling off prevents rapid absorption of toxins and creates an effective barrier against further extension of the inflammatory process. Other favorable factors in the treatment are diapedesis of leukocytes from the injected blood and the intrinsic bactericidal property of blood serum. The method is particularly valuable in the treatment of severe, rapidly progressing furuncle of the upper lip. The method likewise was effective in infections of the face and the axilla. Rapid disappearance of pain, limitation of the inflammatory process and a relatively shorter duration were noted.

Operative Treatment of Pruritus.—Vorschütz operated in two cases of pruritus of the anal area, which had proved refractory to conservative treatment. A circular incision with the anus for its center was carried through the tissues down

to the fascia. Another circular incision was made at a distance of 3 cm. from the first. The edges were then slightly undermined and closed. Complete relief from itching was obtained in both cases. A discussion of various operative methods is given.

Nederlandsch Maandschrift v. Geneeskunde, Leyden

14: 421-474, 1927

*General Treatment of Skin Diseases. M. E. Polano.—p. 421.
*Tetany Simulating Appendicitis. W. C. Aalsmeer.—p. 449.
Compulsion Neuroses. E. A. D. E. Carp.—p. 458.

General Treatment of Skin Diseases.—Polano reviews the treatment of skin diseases by diet, by internal administration of drugs and by colloid therapy, with particular attention to the mechanism of the curative action. The salts contained in vegetables decrease the sensitiveness of the skin to external stimulation, and since cooking salt appears to oppose the favorable influence of vegetable salts, it should be used as little as possible in the preparation of vegetables. The relief of pain is a powerful factor in the cure of inflammations. Skin inflammation of every kind can be favorably influenced by numbing the sensory nerve-endings in the skin, either by local or central action. The effects of calcium, of cinchophen and of quinine are partly to be ascribed to their analgesic influence. Venesection is a form of colloid therapy and its results in exudative skin diseases are the same as those of parenteral administration of colloid. The successful treatment of dermatoses (particularly exudative) with hemotherapy, of erythema multiforme with injections of staphylococcus or gonococcus vaccine is explained by the parenteral administration of colloid plus protein. Colloid therapy is indicated wherever a good result may be anticipated from decreased permeability of the vessel walls, i. e., in all exudative dermatoses and in hemorrhagic processes in the skin. The action of electrolytes is the opposite. They are used with the object of "washing" the tissues free of toxins and in the skin diseases of old age (pruritus senilis), that are caused probably by scanty blood supply to the part.

Malarial Tetany with Symptoms Suggesting Appendicitis. Tetany Manifested by Administration of Sodium Bicarbonate.—In the case of Aalsmeer's patient, a young Javan girl, with quartana parasites in the blood, exploratory laparotomy undertaken because of abdominal pains with chief localization over MacBurney's point revealed a normal appendix. The pains in the abdomen and the parasites in the blood disappeared, but the former returned about six days later, and were accompanied by symptoms of tetany. It was especially noted that excitation of spasm in one hand was followed by aggravation of the tetanic condition elsewhere and by severe pain in the abdomen. Aalsmeer thinks that the malarial attack, by increasing metabolism, was responsible for the tetany. The patient responded promptly to lactas calcicus and was then tested with 5 Gm. of sodium bicarbonate four times daily. The abdominal pains returned and Chvostek's and Trousseau's phenomena again became positive. The experiment was repeated twice after the condition had again become normal. The symptoms of tetany returned on each occasion.

Bibliotek for Læger, Copenhagen

119: 739-788 (Oct.) 1927

Neurosyphilis. N. C. Borberg.—p. 739.
Varieties of Bacterium Coli Occurring in Man. O. Mikkelsen.—p. 759.
*Pathogenesis of Infantile Tetany. P. Drucker.—p. 769.
*Formation of Ammonia in the Organism. E. Gottlieb.—p. 778.

Pathogenesis of Infantile Tetany.—Drucker's results do not justify the classification of infantile tetany under ammoniacal dysregulation and the consequent association of this disorder with disease or dysfunction of the parathyroid gland. His study of urine analyses gave no support to the so-called alkalosis theory of the pathogenesis of the disease. Evidence that infantile tetany is dependent on a shifting of the blood reaction in the alkaline direction was also lacking. The symptomatic action of calcium chloride in this disorder seems more lasting than that of ammonium chloride, the former affecting primarily the total calcium of the blood, the latter, its acidity.

Formation of Ammonia in the Organism.—Gottlieb found an average of 0.03 mg. of ammonium nitrogen per hundred cubic centimeters of arterial or venous blood of normal dogs. This amount, or most of it, apparently was not preformed. The speed of its formation decreased regularly from the moment of removing the blood, depending chiefly on the temperature and slightly on the reaction. Its formation was assumed to arise from the protein substances in the blood. Simultaneous determination of the ammonia in arterial and renal venous blood of dogs, and also examination of the urine, confirmed Nash and Benedict's theory that the urinary ammonia is produced in the kidneys. No positive results were gained as to the source of the urinary ammonia.

Hospitalstidende, Copenhagen

70: 865-884 (Sept. 15) 1927

Health Conditions in Northern Greenland. K. Hrolv.—p. 865.
*Atypical Pernicious Anemia in Childhood. T. Christiansen.—p. 875.

Pernicious Anemia in Childhood with Unusual Course.—Christiansen records a protracted case of megaloblastic hyperchromatic anemia in a child, with complete agreement of the blood pictures seven years apart, almost constant, more or less pronounced anemic symptoms, and three marked exacerbations, two with hemorrhages in the skin and mucous membranes. The second of these, at the age of 14, resulted fatally. He is inclined to consider it a case of pernicious anemia of somewhat atypical form.

70: 885-908 (Sept. 22) 1927

Treatment of Skin Diseases with Alpha and Beta Rays. S. Lomholt and J. C. Jacobsen.—p. 885.
*Intracutaneous Inoculation Test for Tubercle Baciili. H. Kjoergaard and K. Winge.—p. 897.
Baastru-Johnsen's Roentgendosimeter. H. M. Hansen.—p. 903.

Intracutaneous Inoculation Test for Tubercle Bacilli.—Kjoergaard and Winge conclude that intracutaneous injection, possibly supplemented by puncture or extirpation of the inguinal gland, affords the best test for tubercle bacilli in experiments on animals.

70: 909-936 (Sept. 29) 1927

Experiences in Leukemia. S. T. Sørensen.—p. 909.
Myopia and Corneal Spots. E. Holm.—p. 926.
*Case of Spontaneous Disinvagination. K. Overgaard.—p. 933.

Case of Spontaneous Disinvagination.—Overgaard reports an instance of spontaneous reposition, confirmed by operation, of an invagination at least three, perhaps five days old, in a child aged 6, with history of entero-anastomosis four years earlier.

Ugeskrift for Læger, Copenhagen

89: 999-1018 (Nov. 3) 1927

*Multiple Gastric and Duodenal Ulcers. E. Holm.—p. 999.
Etiology and Serum Therapy of Scarlet Fever. V. Bie, A. Larsen and M. S. Andersen.—p. 1001.

Multiple Gastric and Duodenal Ulcers.—On the basis of statistics from the literature, supplemented by his own investigations, Holm urges careful examination in cases of perforated ulcer to ascertain whether other ulcers, perforated or threatening perforation, are present, with prolongation of the operation, if possible, to admit examination of the omental bursa through the usually transparent gastrocolic ligament and closer investigation, if the condition demands, by entrance through the gastrocolic ligament. He states that about 20 per cent of simple nonperforated ulcers are multiple, which warns against treatment of the single ulcer and constitutes one of the factors determining the kind of operative treatment. The multiplicity of the ulcers may justify extensive resection, since they are usually close together ("kissing ulcers"), or be an indication for gastro-enterostomy because of the danger from any ulcer not removed by resection.

CORRECTION

Hexylresorcinol as General Antiseptic. — The caption "Hexylresorcinol as General Anesthetic" appearing in THE JOURNAL, Dec. 3, 1927, p. 1997, should read "Hexylresorcinol as General Antiseptic."